

in he frequently alludes to a total absence of laws and law-books among the Armenians, and to the consequent necessity of his collecting data, and embodying them in the form of a code of laws! In the second chapter of his law-book, the heading of which is, "Why were we disposed to compile this book, or what incentives induced us to resolve on framing this code?" Mechithar Ghosh furnishes the reader with a statement of his reasons for so doing, of which the following is an extract:— "That we have often been accused not only by unbelievers, but by Christians also, of a total absence of law-books, based upon the principles of evangelical laws. That lest, from the non-existence of a written law, the Armenians should apply or appeal to unbelievers for justice. That many, on various occasions, ignorantly distort the true meaning of laws, and it is for their information and correction that we were induced to compose this code of laws. Not content with this alone, we caused this code to be placed in courts of judicature, as a record intended for occasional and necessary reference. That being destitute of written laws, our predecessors were unable to make references, but, on the removal of this want, we shall now avail ourselves of this record, and be able to afford a proof to unbelievers of the existence of written laws amongst us, by which they will be silenced, and obliged to desist from heaping on us accusations for the apparent want of a code. We were for a very considerable time subjected to the keenest reproaches of our countrymen and strangers for the absence of a law-book, and their censures proved as a spur to us in undertaking the preparation of a code of laws....I was also seized with astonishment at the apathetic indifference displayed by our ancestors in not supplying this desideratum."

These remarks were written by Mechithar Ghosh, towards the close of the twelfth century, at which period, as stated above, he flourished in Armenia in the character of an Armenian lawgiver, and erudite author. But, as the numerous Armenian families that first quitted Armenia emigrated to Poland in the middle of the eleventh century, it is very probable that these emigrants carried with them their own law-book, which it was impossible for Mechithar Ghosh to meet with in Armenia. The Armenian colonists in Poland being in possession of a law-book of their own, were guided by it in all their civil and judicial affairs, as stated above. Yet, upon all this, considering the laws al-

luded to by him, relative to the prerogatives of kings and the rights of princes, we are led to conclude that Mechithar Ghosh was at least possessed of some fragments of the laws of the kings of the ancient Bagratidæ and Arsacidæ, otherwise he would have candidly declared that the code was entirely his own production. This carries with it its own improbability. And it is not injudicious to adopt this conclusion from the perusal of the second chapter of the prefatory observations of his law-book, in which he says:—"This string of laws will perhaps be considered an object of ridicule by those in whose hands it may chance to fall! They will assimilate us in their mind's eye to those who, in a fit of delusion, dream of kingdoms and of royal splendour and glory; but no sooner they are awakened from their illusive and enchanting dreams, than they see nothing but the mere shadow of what their heated imagination had portrayed in glowing colours! But, let them remember that I am not ignorant of the vanity and transitoriness of all earthly kingdoms! Of this we have a most singular and striking proof in the rise, progress, and annihilation of our own kingdom. The past has vanished for ever—the present is a mere tantalising nonentity—the future I can scarcely hope to see! Yet, these distressing circumstances and melancholy reflections will not be permitted to cool my ardor in prosecuting the task of framing a complete code of laws, conformable to the wants and present state of the nation, from the conviction, that the utility of my production will be generally acknowledged and duly appreciated. In attempting to publish and promulgate this work, I must crave the kind indulgence of unbiassed observers; and, in so doing, I stand fully prepared to be visited with the censures of hasty and fastidious critics, for such errors and imperfections as may be found in this production of mine. Yet I still entertain a hope, that they will consider me worthy of credit for good intentions, though they may not be disposed to extend to me their pardon for the defects of my work." From these observations of Mechithar Ghosh it is to be inferred, that the laws contained in his book were not *bonâ fide* his sole production, but a compilation from those framed by ancient Armenian law-givers. In preparing this article on the laws and law-books of the Armenians, I have availed myself of Inchichian's "*Antiquities of Armenia*," a work published at Venice in 1835, and replete with deep research and

most valuable information. If the Mechitharistic Society* of Venice be disposed to publish a correct edition of the code of Mechithar Ghosh, and of the book of laws prepared under the auspices of the Armenian king, Johannes the Bagratian,—authentic copies of which are preserved in the extensive library of that learned body,—they will certainly confer a very heavy obligation on their countrymen generally, but more particularly on the Armenians located within the pale of the government of British India. An approved and unexceptionable edition of these two statute-books of the Armenians, cannot but be most servicable to the judges of the Sudder Dewany Adawlut, who will be entirely guided by them as by an unerring criterion in their decisions on causes and questions arising from hereditary gifts and testamentary bequests of the Armenians residing under the jurisdiction of the Mofussil courts. But in the absence of printed Armenian law-books, questions of succession to property, in cases in which the litigants were known to be Armenians, have been invariably referred in writing by the judges of the Company's courts to such of the Armenian bishops as happened to sojourn or itinerate in this part of British India, during the period of their triennial or septennial episcopal visitation, which they performed in accordance with the written and acknowledged authority with which they were respectively invested by the pontificate of Etchmiatchin,† near Erevan, in the province of Ararat, the archbishoprick‡ of Julpha in Ispahan, and the patriarchate of Jerusalem,§

* This veteran Society was established in the year 1717, and its members have been pre-eminently successful in the revival and cultivation of the classical literature of Armenia, by the publication of numerous philosophical, philological, and scientific works of sterling merit. The members of this Society lead a strictly monastic life. The following lines are extracted from the life of its zealous and patriotic founder:—

“ Մենաստանս այս ըստ ըրորին
 Ըինեալ եղև 'ի փառս Փրկչին,
 Յարգայուծեան Սեբաստացւոյ
 Միթիմարայ զարդադեռին: ”

“ Fuit hoc monasterium totum tempore Mechithar Petri ex Sebaste I. Abbatis extractum. A. D. 1746.”

† 'Ի կաթողիկոսարանէն Երջմիածնի :

‡ Յառաջնորդարանէն Զուղայու :

§ 'Ի Պատրիարքարանէն Երուսաղէմի :

to which each or any of them individually belonged. Sometimes, in the absence of Armenian bishops, the officiating Clergy attached to the Armenian church of Calcutta have also been consulted on questions of inheritance, or testamentary bequests. The exposition of the Armenian law or usage, furnished by these episcopal and clerical dignitaries of the Armenian church, in accordance with the specific queries put to them, has, almost in all instances, guided the judges of the Company's courts, either in determining similar questions pending *sub judice*, or in pronouncing their decisions in cases of the above mentioned description. The Company's courts, so far as my information extends, pursue the practice sanctioned by the precedents alluded to above.

In connection with the subject of Armenian laws and law-books, I think it necessary to add, that in June 1838, I was requested by my highly esteemed and deeply lamented friend, Mr. James Prinsep, to pass my opinion on a certain Armenian code of laws in manuscript, which accompanied his letter, for my perusal and consideration. I cheerfully undertook the task intrusted to me, and instantly put him in possession of my opinion in a letter, of which the following is a copy:—

TO JAMES PRINSEP, ESQ.

MY DEAR MR. PRINSEP,

I have received your note of yesterday's date, together with a manuscript volume in the Armenian language, and hasten to put you in possession of my candid opinion on the same.

The book in question is a code of laws, both civil and ecclesiastical, written or transcribed in the Haican era 1135, corresponding with the year of our Lord 1686, partly by a priest named Alexianus, and partly by a bishop named Jacob, native of Ghrim, and pupil of another bishop named George, of the see of Ezinka. The transcription thereof was made at the desire of another bishop named Thomas, and inscribed to Stephanus, the supreme patriarch of the Aluans. The work is based on Mosaic laws, and the materials of which it is composed are derived from the Old and New Testaments, and from other ancient records.

Mechithar Ghosh, who flourished in Armenia between the close of the twelfth and the beginning of the thirteenth century, and who is eminently distinguished in the page of our national history for his unrivalled attainments, is known to have been the author or

originator of a code of Armenian laws, which was then generally used in the courts of judicature of our country. History also tells us that another code of laws was in existence in Armenia, so far back as the year of Christ 1046, written or prepared under the auspices of the Armenian king, Johannes Bagratian. The latter has been in general use among the numerous Armenian population of Poland, where a transcript of it is preserved, with a Latin translation; but the text or original work is not to be found. As neither of these law-books has found its way to India, I am unable to say whether the volume you have sent me is a transcript of the one or the other, for the name of the author or legislator has unfortunately not been inserted therein. I am, however, inclined to think it to be a compilation from both, but cannot take it upon myself to say, whether it is one of established legal reputation in Armenia. It is greatly to be regretted that the code of Mechithar Ghosh has never been printed or published to this day. This, under existing circumstances, is certainly a very serious evil to the Armenians living under the jurisdiction of our Zillah courts.

The following is a translation of a portion of the Chapter on Inheritance :—

“ Chapter CIV.—Of the division of Property.

“ Conformably to the rule of division, property must be equally divided in the following manner: that is to say, the whole of the property to be considered as one drachma, and the drachma as six oboli. If there be a son and a daughter in the family, the property must be thus divided: that is to say, two and a half oboli to the brother, two and a half oboli to the sister, and one obolus to the mother. But, if there be two sisters, and both of them married, the two sisters are to be looked upon in the light of one brother. Two and a half oboli to be given to the brother, two and a half oboli to the two sisters, and one obolus to the mother.”

From this it will appear, that the wife or mother is entitled to one-sixth of the property bequeathed by the father or husband. This custom or usage, so far as my information extends, does to this day obtain among the Armenians residing in the various parts of Persia and Turkey. It is difficult for me to ascertain whether the Armenians living under the rule of Russia,* are equally guided or influenced by this usage.

* A code of laws, bearing the affix of the imperial *fiat*, was concocted and published in 1836, for the guidance of the Armenians living in Ararat, one of the provinces of Armenia which is now under the sway of Russia. A copy of this code of

Herewith I return you the manuscript volume, with the contents of which I have already been made acquainted, by the kindness of its former owner.* Another copy of this work, though not so elegantly written, was in the possession of one† of the Armenian priests of Calcutta; but in consequence of his death, it was, together with his other books, sent to his son at Ispahan in January last. Should you require an English translation of any other portion of the work, I shall feel most happy to furnish you with it.‡

Believe me to be,

CALCUTTA,
26th June, 1838.

Your's very truly,
JOHANNES AVDALL.

laws in manuscript having been sent to me from Madras, I instantly put it into the press, and published a sufficient number of copies thereof for the numerous Armenians living in different parts of British India. The contents of this code are, however, inapplicable and scarcely of any use or benefit to my expatriated countrymen, scattered throughout this portion of the globe. Driven as we are from our country by Moslem despotism and unrelenting persecution—bereft as we are of our national glory and independence—wandering as we are on the surface of the globe like the scattered children of Israel, but partially domiciled here, under the fostering and paternal care of the British Government, I trust I shall not be taxed with presumption in expressing a wish, that a string of laws, well adapted and suited to the circumstances and general condition of the Armenians settled in this country, framed and concocted by the wisdom of the Legislative Council, be passed and promulgated by the Supreme Government of British India, with the view of promoting and securing the welfare of the children of their adoption. In asking this boon, I rest assured that it will be conceded to us by the illustrious and philanthropic head of our government.

* The former owner of this law-book was the late Right Rev. Hárúthéun Várdápiet Սրբազան Թաթուլի Վարդապետ of the fraternity of the Armenian Convent of Julpha in Ispahan. In the year 1824, while residing at Sydadabad with his brother, the late patriotic Manásacán Vardon, the Rev. gentleman was applied to in writing by Mr. G. C. Master, first judge of the Provincial Court for the division of Dacca, to state his opinion on a certain question of inheritance, arising from the will of a certain opulent Armenian inhabitant of that place. In complying with Mr. Master's request, this dignitary of the Armenian church availed himself of the contents of this very law-book. His opinion on the subject is justly and appropriately prefaced by these words—"All laws of justice, either civil or ecclesiastical, in all Christian nations, have their origin from the Holy Scriptures." The judges, I am credibly informed, were guided by his opinion in pronouncing their decisions. Hence, it is evident, that the book in question was considered by the judges as a sufficient authority. On the death of Hárúthéun Várdápiet, the book alluded to became the property of his brother, Mr. Manásacán Vardon, on whose demise it devolved on his eldest son, and is *now* in the possession of his youngest son, Mr. S. M. Vardon.

† The late Rev. Ter Marcar Ter Carapiet, Հանգուցեալ Սրբազան Տէր Մարգար Տէր Կարապետեան formerly vicar of the Armenian church of Calcutta, of happy and blessed memory.

‡ The utility of piecemeal extracts from these manuscript Armenian law-books, will be temporary and confined to a few only. As several of the Armenian residents in the Mofussil, have a large and extensive property in lands and talúks, would it not be advisable for them to adopt measures for printing at the Armenian press in Venice the code of Mechithar Ghosh, and the law-book of the Armenian king, Johannes Bagration? Let them come forward and supply the *sine quá non*, and the long-desired object will be speedily and satisfactorily consummated.

On Tabular Returns of the N. W. Frontier Trade with Afghanistan.

[Profiting by the scope and character of this Journal, and following the system of the Society after which it is named, the Editor has not hesitated in publishing the following Tables, and the remarks upon them, as containing most valuable notice of a subject interesting to all in India. The information compendiously given in the above, was the result of private perquisitions, made at the instance of the writer of this note: it may be relied on as strictly accurate. The allusion to disadvantages opposed to traders from Cabool is only made, in order to show how great must the contrary advantage be, and how strong the impulse to trade, when, (as the writer believes to be the case,) they have now been removed by recent arrangements.]



EXPORTS.

British Manufactures and Island Produce.

The statement (No. 1,) embracing the trade of the year 1840, (from January to December,) in British manufactures and Island produce cannot, it is to be regretted, be pronounced thoroughly accurate, inasmuch as it is derived from data which is presumed to be imperfect. However, the quantity of each staple therein exhibited as having been exported to Cabool across our North-west Frontier, during the period under review, is, there is every reason to believe, by no means exaggerated; on the contrary, it may be said to fall far short of what actually found its way to the Northern marts, via Delhi, which is the great *entrepôt* of the extensive commerce of our North-western Provinces and Central Asia.

The correctness of the staples of trade given in the statement can be vouched for, and it will be observed, that cloths form the chief. Of the several descriptions of linen the most prized and sought after, is long-cloth, (*Luttah*,) the unbleached being preferred to the bleached; the Cabool merchants having discovered that our method of bleaching rots the thread, and abstracts a year's wear at least from the cloth; besides it enables them the more readily to dye it blue, their favourite colour.

Of all the export staples, British linen is said to give the greatest return, yielding a nett profit of nearly 100 per cent. on the outlay,

and to meet with the most ready sale, the merchants from Khiva, Bokhara, Khorassan, Samarcand, Lodauk, &c. &c. buying it up with avidity.

Our broad cloths, too, are eagerly sought after, (*sombre* colour are preferred to gay,) and immense quantities are said to be exported from Bombay. It is only the coarser quality that is inquired after here. The same remark applies to Birmingham and Sheffield ware, cutlery, &c. which is very much admired and prized; especially when contrasted with the miserable wares of Russia, specimens of which, when contrasted with the rudest workmanship of the Delhi artificers, have shown the comparison to be greatly to the prejudice of the former.

The next article in point of importance is metal, (lead, copper &c. the former in pigs, and the latter in sheets,) and of this it need only be said, that the demand for the Northern marts is greater than the supply here, *i. e.* the surplus supply—the home consumption being enormous.

Island produce, of which the several kinds of spices compose the principal export staple, (black pepper is the chief item,) will always exercise a very important influence on the Cabool trade; for, although not strictly coming under the term “necessary,” the customs and habits of Asiatics render the consumption of Island produce, spices, beetlenuts, pigments, &c. a matter of course.

The trade, as will be seen in Island produce, has been tolerably brisk during the past year; but it would have been considerably more so, were it not for customs' restrictions.

Almost all articles of Island produce are subjected to port duties when imported seaward into Calcutta, and therefore, agreeably to the liberal principle allowed by Government, ought not again to be taxed any where within the Company's territories. This, however, is not, and cannot be done, inasmuch as most of the produce of the Islands is also liable to the payment of inland customs' duties; that is, they (*vide margin**) are borne on the tariff, which regulates the levy of duty in the inland customs' houses.

* Spices, beetlenuts, logwood, pepper, long pepper and its roots, (called *piplamoor*,) sandal-wood, senna, camphor, benjamin, red earth, red lead.

A Cabool merchant, (to give an example,) purchases at Calcutta 10 maunds of black pepper, which he is told is sea-imported, and therefore not liable to further interference any where within the Company's territories. He brings this pepper to the North-west frontier line of customs unaccompanied by a *rowannah*, when, as a matter of course, it is seized. The owner urges that he purchased it at Calcutta as a sea-import, and the customs' officer demands proof, which is not forthcoming. The consequence is, that the goods are detained, and the case is reported to the Sudder office, which is often distant a hundred miles from the scene of action. The merchant defending the case urges the same plea, and the native appraiser, who cannot possibly know the difference, is asked his opinion as to whether the article is sea-imported, or country produce. In nine cases out of ten he declares it to be the latter, when the custom collector desirous of discriminating between zeal to Government and justice to the trader, determines upon sending samples of the goods to the custom master at Calcutta: meanwhile, the merchant is told that his property must remain under attachment, or he must deposit a sufficient sum of money to meet a demand for single duty. This latter alternative he gladly accepts, considering any sacrifice better than further detention, which usually swells out to fifteen or twenty days.

The samples are, in due course, submitted to the English appraiser in Calcutta, who, possibly knowing nothing of country produce, or at least of the particular produce in question, pronounces the samples to be sea-imported; consequently, the inland custom collector resolves to release the pepper; but the owner is no where to be found, and his money remains in deposit for three months, when, according to the rules of the department, it reverts to Government.

Subsequently the owner on his return trip to the provinces calls to know the fate of his money, and he is told that although the pepper was proved to have been sea-imported, the duty was carried to credit, as he did not claim it within the prescribed period of three months.

The above will shew, without further comments, how materially this branch of commerce is retarded, (and without help) by the frontier customs.*

* I have reason to believe, that this inconvenience is in course of remedy.



Country Produce.

Statement No. 3, exhibits this section of the Cabool trade during the year 1840, and as it is compiled from authentic documents, there can be no doubt of its accuracy. Want of time has not allowed of a comparison with the exports of previous years, but there are the most ample grounds for asserting, that the past has more than quadrupled in quantity and value the exports of former years.

Statements No. 5 and 7, shew the exports during January and February 1841, which have also been abstracted from the custom-house registers. A marked improvement will be observed in these, especially as regards the chief staples, cloths and shoes, more than double of the former, and quintuple of the latter, having been exported during these two months than during the whole of last year. Indigo, which also occupies a prominent station, I have reserved for particular notice hereafter.

Statement No. 10, gives the exports of the past month, (March 1841); this is not included with Nos. 5 and 7, with the view of mentioning that measures were taken in February last at all the custom posts stretching along the outer frontier line, which extends from Kalsie in the Deyrah Dhoon to Goverdhun on the Eastern boundary of the Bhurtpore territory, for the registry not only of all country, but British and foreign produce exported to, and imported from, Cabool; and that, therefore, means are obtained for the faithful record of the operations of each month, and in each article.

From this statement it will be seen, that 92,401 pieces of cloth (linen, silk, and brocades,) valued at Rs. 1,82,064 were carried across the frontier in March, which was considerably more than any other period, and gives evidence of the increasing demand for the productions of British India.

Cloth being the principal staple of commerce in country produce, it may be necessary to state what descriptions of cloth are most desired. The most valuable, and consequently the least in quantity, are kimkhaubs and doputtas, (coloured,) both of which are manufactured at Benares, and yield unusually large returns on re-sale at Cabool. The largest in quantity, but least in value, are Furruckabad chintzes, and Dooab muslins, ghingams, doosooties, and garhas, also Dinapore muslins. These latter are preferred to the indigenous cloth of the

north, as possessing a finer and stronger texture, being mostly woven with English and country thread.

Country shoes, which it will be perceived are exported in large quantities, are manufactured chiefly about, and exported entirely from, Delhi. Indigo, regarding which a distinct notice was reserved, possesses the distinguishing feature of being the only article of trade contained in the statements, which is not conveyed directly by the Cabool (*Vilati*) merchants. It is in the first instance consigned by the Delhi merchants to Amritsir, from whence it finds its way to Cabool. That which is exported across our customs' frontier, is raised at Koorjah in the Alligurh district; but the quantity stated in the statements, is perhaps not one-half of what will be found in the Cabool market, as large quantities have within the last few years been grown in the protected Seikh states* which are beyond our line, and from thence imported into the Punjab, and countries contiguous to it.

There was at first room for doubting the fact, that indigo really found a market at Cabool to the extent alleged, and close inquiry was therefore instituted of the Cabool merchants; the result has proved the correctness of the original information, and the removal of all doubt on this important question may truly be deemed of paramount interest, both to the European who embarks his capital in raising indigo, and the exporter, who will be, in a great measure, rendered independent of the fluctuations of the European market, by the wide field of enterprize opened to him in the vast countries of the north; where, as I have before observed, the beautiful and permanent dye of indigo will always supersede every other, from its being the favourite colour, and applied to the commonest wearing apparel. However, this refers more to a prospective, than a present benefit.

Indigo produced by a European, whether from its superior quality, the result of superior machinery and larger outlay, or enhanced price, cannot for a time compete with the inferior and cheaper material produced by the native manufacturer, for reasons obvious to those

* Munny Majra in Sirhind, a small principality among the states, produces it most extensively, and of the best quality.

acquainted with the purposes to which indigo is applied,* and the low ebb to which the monetary relations of the mass of the people of the north were reduced, immediately previous to the influx of British enterprise and British capital. When the operation of these powerful, and hitherto never-failing propellants to prosperity shall have come into full play, it may reasonably be hoped that articles, whether indigenous to Europe or Asia, of European manufacture, will be consumed in preference to those which are produced from the rude and primitive machinery of India.

The other articles of export in country produce, with the exception of *Gotah kenarre*, scarcely merit particular mention, as they are so trifling; but it may be reasonably expected, that as the productions of British India become better known, they will be appreciated, therefore more extensively consumed. Already the use of *lac* is being understood, and I am aware of several merchants having carried samples of it with them, that they might regulate the supply by the demand.

Gotah kenaree, (gold and silver tissues,) will, I am assured, in time be extensively sought after. The chief—possibly only—places of manufacture are Lucknow and Delhi; the latter especially.† It is impossible to ascertain precisely the quantity exported, as from its great value, every expedient is resorted to, and it is said successfully, to smuggle it.

As pertinent to this subject, it is worthy of remark, that in 1837, several camel loads of spurious lace were stopped, which were crossing the line, packed in bundles bearing the manufacturing mark of *Moscow*. It had been brought from Cabool, and had been sent to the

* There are yet other reasons which militate against the purchase by Afghans of indigo manufactured in the European method, the principal of which is the compact pressure given by us to the article. This renders necessary the employment of machinery to grind down the dye before the colouring matter can be properly extracted, whereas the friable, uncompact nature of the indigenously manufactured article, admits of its ready solution in water.

† Benares has also, I think, an extensive manufacture of this article.



provinces, with the view of ascertaining whether sale would be obtained for it ; since that period no attempt has since been made to force the manufactures of Russia into our markets.

IMPORTS.

Previously to the opening of the Cabool trade by the result of recent political events, exports were greatly disproportioned to imports ; the dangers of the route, and other obvious causes, rendering it most unsafe to convey foreign and valuable articles, which could tempt the cupidity of the lawless hordes, inhabiting the countries through which the route lay. The imports were, in consequence, converted into specie, and not, as now, paid for in kind : so that the advantage all lay on the side of Cabool.

In the statements of import trade, only such articles as yield a duty to the British Government are shewn. Of these, the chief is *assafoetida*, which always meets with ready sale in our provinces. There is perhaps no country in the world where *assafoetida* is more commonly used than in Hindoostan.

Saffron is in less common use ; the price placing it beyond the means of any but the rich, and a preference being given to that which is brought from Calcutta, imported from the Persian Gulph in Arab ships.

Besides the duty-paying staples, fruits, sarsaparilla, salopmisry, lapis lazuli, medicinal drugs, opium, and churrus, comprize the import trade of Cabool. In the margin* is appended a note, shew-

* Raisins,	1774	Camel loads.
Pistachio Nuts,	182	ditto.
Monukkas,	592	ditto.
Khobaunnies,	90	ditto.
Pears,	108	ditto.
Pomegranates,	605	ditto.
Walnuts,	14	ditto.
Prunes,	71	ditto.
Almonds,	379	ditto.
Plumbs,	66	ditto.
Grapes,	105	ditto.
Figs,	14	ditto.

4,000

Fruit is only imported in the cold season.

ing the number of camel loads of fruit, amounting to 4,000, which crossed our frontier from November 1838 to April 1839. The operations of this period are shewn in preference to any other, as being the least favourable, in consequence of the military preparations in progress at that period, by which the trade was partially checked ; so that there was a falling

off of nearly one-fourth in the imports of previous years, and one-tenth of those of 1840.

Mooltan, Bahawalpore, and Soorutgurh, and Bhutneer, (in the Bekaneer states,) mark the route followed by the *Kafilas* before they enter the British possessions. From Bhutneer they come to Sirsa, in the Bhutty territory ; whence travelling by Ranea, Hansie, and Rhotuck, they enter Delhi, and then diverge to the several marts of the provinces.

The reason assigned for the *Kafilas* congregating at Delhi is, that by doing so, they avoid the heavy duties imposed at every customs' *chowkey*, which they would have to pass in their progress through Bекaneer, Lohanee, Kanounie, and other foreign states.

The nature of these duties will be judged from the subjoined memorandum.

At Soorutgurh, per camel load of fruit, pays a tax of .. 12 annas.

At Bhutneer, the same, 12 annas.

Total, Rs. 1 8

This amount of duty is paid by the Cabool merchants to the Bекaneer state, and it is computed that in good average years a revenue of rupees 12,000 is derived from this source ; which, at 12 annas per camel load, would shew the average number of camel loads of fruit imported every season into our territories to be 16,000. This tax is levied without distinction as to the quality of the fruit, all paying alike, and when two camels are lightly laden, from their being young or weak, they pay the tax of one proper camel load.

At Naheir, in the Bhekaneer states, an additional duty

is levied of, per camel load, Rs. 1 5 0

And at Buhadera, also in the Bекaneer states, a further

duty of, per camel load, 2 10 0

Making a Total of Rs. 3 15 0

which, added to the duties levied at Lohanee, Kanounie, &c. averaging 1-8 per camel load, shew an aggregate of rupees 5-7 per camel load, which the merchants would have to pay in addition to the tax paid at Soorutgurh and Bhutneer, were they to enter our territories by any other route than Sirsa and Delhi. Of course, no reference is made to the route running through the Khyber Pass, the Punjab. Ferozepore and Loodianah, as the Cabool merchants would at all risks avoid it.

It now remains to offer a few brief general observations, premising as to the character of the Cabool merchants, that they are remarkable for probity and straight-forward dealing, combined with caution and great tact in the art of buying and selling, and that it is so high in the provinces, that credit to any amount is given to them without hesitation. Indeed a striking resemblance in this respect may be traced between them and that remarkable tribe the Brinjarruhs.

After disposing of most of their import wares at Delhi, the merchants proceed to the lower provinces, furnished with bills of exchange from the Delhi merchants on their agents at Cawnpore, Allahabad, Benares, Calcutta, &c. and having laid in a stock of goods suited to the Cabool markets they return to Delhi, and forming a *Kafila*, retrace their way back to Cabool by the same route* they come. They use no other carriage but camels until they reach Allahabad, at which place they leave them, and convey any goods they may have purchased in the lower provinces on hackeries.

Mention was not made in the proper place, that besides the trade carried on *bona fide* by the Cabool merchants, which the statements appended are intended to shew, immense quantities of every kind of goods obtainable at Delhi are consigned to Cabool by the Delhi merchants, through their agents at Amritsir, and advantage is taken of convoys proceeding to Cabool to despatch large consignments.

As a proof of the growing importance of the Cabool trade, it may be mentioned, that an insurance office (Native) has been opened in Delhi, which will assure goods to any amount and value to Cabool.

The regeneration of the town of Sirsa has greatly contributed to the convenience and security of the Cabool merchants. The opening of the navigation of the Indus, and the predominance given thereby to Ferozepore, has certainly abstracted in some measure from the importance of Sirsa, as a grand emporium of traffic. Yet it will always be deemed a valuable *point d'appui* to the northern trade, especially as the superintendent of the Bhutty territory can protect the traders from exactions and vexatious delays on the part of our subordinate customs' officers.

* They usually make trips in the year one and a half.

In conclusion it may be noticed, that the Cabool merchants being totally ignorant of our laws, especially customs, are shamefully imposed upon by a set of law people, who, under the pretence of instructing them how to avoid rendering themselves amenable to our courts, prey upon them in every possible way. It would therefore be very desirable, if the authorities at Delhi were required to direct attention to the interests of the northern trade.*

I am happy to inform you, that since I last wrote, an enterprising merchant of Delhi, who was formerly an inhabitant of Peshawur and removed to Hindostan with Governor Elphinstone's mission, despatched a small consignment of goods (vide margin) to Yarkund via

Subathoo and Lodauk, with the view of ascertaining whether our exports could not be thrown into China by way of Yarkund, which is I believe situated directly on the borders of it. He seems to be very sanguine of success; as he considers that the superiority of our manufactures will always secure for them the preference over those of Russia, with which alone the Yarkund market is now supplied. In a few days I will submit a statement of trade for April, in which I hope to be able to exhibit three or four new exports. Until October or November, however, the trade altogether will be very slack.

Indigo, khimkhaubs,
doputtas and long-
cloth dyed blue,
skins and jewellery.

- * Attention has, I believe, been directed to this point.

¶

No. 1.

Statement of Goods exported from and via Delhi to Cabool, during the year 1840, the same being British Manufactured and Sea Imported via Calcutta.

Names of Articles.	Quantity.	Estimated value.	Remarks.
BRITISH MANUFACTURES, &c.		<i>Rupees.</i>	This Statement has been drawn up from information supplied by the Cabool Merchants' Agents in Delhi, and may, possibly, not be correct.
Linen cloth, white,	30,000 pieces,	3,15,000	
Chintzes,	25,000 ditto,	80,000	
Velvets,	400 ditto,	60,000	
Broad cloths,	not known,	50,000	
Birmingham & Sheffield-ware cutlery, &c.	ditto,	45,000	
Glass-ware,	ditto,	15,000	
Gun flints,	ditto,	10,000	
Lead, Pewter, &c.	ditto,	1,20,000	
Copper,	ditto,	25,000	
Alum,	ditto,	20,000	
White lead,	100 maunds,	8,000	
Total,	...	7,48,000	
SEA IMPORTATIONS.			
Species, Drugs, &c.	3,300 maunds,	70,000	
Logwood,	2,000 ditto,	20,000	
Beetle nuts,	500	10,000	
Brimstone,	500 ditto,	8,000	
Quicksilver,	30 ditto,	5,000	
Red lead.	200 ditto,	15,000	
Vermillion,	50 ditto,	6,000	
Sandal wood,	200 ditto,	3,000	
Red earth,	200 ditto,	1,000	
Total,	...	1,38,000	
Grand total,	...	8,86,000	

No. 2.

Statement of Goods imported from Cabool across the N. W. Frontier, during the year 1840. The same being liable to the Custom Tax.

Names of Articles.	Quantity.			Value.			Amount of Duty.		
	MDS.	S.	CH.	RS.	AS.	P.	RS.	AS.	P.
Assafoetida,	1,652	38	2	1,44,971	3	9	14,496	15	5
Zeerah, Cummin, ..	1,346	16	8	10,275	5	6	770	11	3
Zaffron, Saffron, ..		33	2½	995	5	0	99	8	6
Gum-mastic,	6	31	0	671	6	0	50	6	4
Sumbhoor or Furs...	118½		pairs.	224	11	8	11	4	0
Total,				1,57,137	15	11	15,428	13	6

No. 3.

Statement of Goods exported to Cabool across the N. W. Frontier, during the year 1840. The same being Country produce, and liable to the Custom Tax.

Names of Articles.	Quantity.	Value.			Amount of Duty.		
		RS.	AS.	P.	RS.	AS.	P.
Cloth,	26,826 pieces	45,525	1	0	1,372	0	8
Cocoanut oil,	20 maunds	280	0	0	20	15	11
Kimkhabs or Bro- cades,	1,633 pieces	39,037	12	0	2,886	5	4
Verdigrease,	70 seers 6 chks.	36	8	3	3	10	5
Hides,	387	218	0	0	10	14	5
Gotah or lace,	595 tolahs	1,312	5	0	65	9	10
Leather Stockings, ..	100 pairs	300	0	0	15	0	0
Amber,	43 tolahs	129	0	0	9	10	9
Cocoanuts,	2,300	92	0	0	4	9	8
Embroidered Goods, ..	64 pieces	785	2	0	58	14	1
Wax Candles,	2 mds. 10 seers	180	0	0	18	0	0
Iron vessels,	6 mds.	75	0	0	7	8	0
Beetle nuts, country, ..	26 mds. 35 seers	215	0	0	16	1	11
Sugar, brown,	2 mds. 12½ seers	21	8	0	1	2	6
Large Hooka snakes, ..	2	20	0	0	1	8	0
Till (Oil seeds,) ..	31 mds. 20 seers	63	0	0	4	11	7
Shoes,	474 pairs	1,340	13	0	78	1	6
Mirzapoor Carpets, ..	247	827	0	9	62	0	6
Old Brass,	2 mds. 10 seers	101	4	0	10	2	0
Iron,	41 mds. 30 seers	43	10	0	4	5	10
Ballchud, Spikenard, ..	1 maund	10	0	0	0	12	0
Red Lead, country, ..	30 seers	12	0	0	1	3	2
Vermillion, do.	6 seers	36	0	0	3	9	8
Nutmegs, do.	6 seers	36	0	0	3	9	8
Red Sandal-wood, ..	11 seers	1	10	0	0	1	11
Tuj, (Cassia,)	23½ seers	20	9	0	0	8	3
Sulphur,	12½ seers	12	8	0	1	4	0
Doosooty Cloth, ..	2 seers	1	2	0	0	1	5
Indigo,	1,989m. 19s. 8c.	2,18,116	9	11	10,905	13	9
Gum,	19 mds. 20 seers	136	8	0	10	3	10
Total,		3,08,985	14	11	15,578	8	7
Total Imports and Exports,		4,66,123	14	10	31,007	6	1

These two Statements are derived from the Custom House Registers, and can therefore be relied on.

No. 4.

Statement of Goods imported from Cabool across the N. W. Frontier, during the month of January 1841, the same being liable to the Custom Tax.

Names of Articles.	Quantity.	Value.	Amount of Duty.
		<i>Rs. As. Ps.</i>	<i>Rs. As. Ps.</i>
Assafœtida, ...	700 mds. 9 seers.	39,361 2 0	3,996 0 0
Sumbhoor or Furs, ...	180 pairs, ...	133 10 0	16 10 11
Black zeerah, Ni- gella, ... }	70 mds. 23 seers.	2,752 14 0	217 5 7
Guns, ... }	2, ...	20 0 0	4 0 0
Total, ...		42,267 10 0	4,234 0 6

No. 5.

Statement of Goods, exported to Cabool across the N. W. Frontier, during the month of January 1841, the same being Country produce, and liable to the Custom Tax.

Names of Articles.	Quantity.	Value.	Amount of Duty.
		<i>Rs. As. Ps.</i>	<i>Rs. As. Ps.</i>
Cloths, ...	987 pieces, ...	1,076 8 10	26 14 8
Kimkhabes or Bro- cades, ... }	51½ ditto, ...	496 12 10	37 4 3
Lac, shell and stick,	20 seers, ...	4 0 0	0 3 2
Iron goods, ...	9 mds. 23 seers,	88 0 0	8 8 0
Brown sugar, ...	35 seers, ...	4 6 0	0 3 6
Wax candles, ...	2 mds. 10 seers,	180 0 0	18 0 0
Indigo, ...	207 m. 8sr. 6ch.	22,728 15 5	1,136 7 4
Shoes, ...	1,498 pairs, ...	858 12 0	43 8 4
Total, ...		25,437 7 1	1,271 1 3
Total Imports and Exports, ...		67,705 1 1	5,505 1 9

These two statements are derived from the Custom House Registers, and can be therefore relied on.

No. 6.

Statement of Goods, imported from Cabool and the N. W. Frontier, during the month of February, 1841, the same being liable to the Custom Tax.

Names of Articles.	Quantity.	Value.			Amount of Duty.		
		Rs.	As.	Ps.	Rs.	As.	Ps.
Assafoetida, ...	11 mds. 20 seers.	1,150	0	0	115	0	0
	Total, ...	1,150	0	0	115	0	0

No. 7.

Statement of Goods, exported to Cabool across the N. W. Frontier, during the month of February, 1841, the same being Country produce, and liable to the Custom Tax.

Names of Articles.	Quantity.	Value.			Amount of Duty.		
		Rs.	As.	Ps.	Rs.	As.	Ps.
Cloth, ...	66,495 pieces,...	89,052	5	10	2,226	10	3
Kimkhab or Bro- cades, ...	91 pieces, ...	2,334	0	0	175	0	11
Hides, ...	30 ...	150	0	0	7	8	0
Benares Dooputtas,	9 pieces, ...	139	3	0	10	7	0
Wax candles, ...	2 mds. 30 seers,	220	0	0	22	0	0
Iron goods, ...	3 maunds, ...	30	0	0	3	0	0
Shoes, ...	959 pairs, ...	506	4	0	25	5	0
Mirzapoor carpets,	1 md. 15 seers,	41	4	0	3	1	6
Iron wire, ...	2 seers, ...	1	12	0	0	2	10
Tobacco, ...	1 md. 20 seers,	7	8	0	0	6	0
Lac, shell and stick,	2 mds. 11 srs. 8 c.	18	4	3	1	11	4
Embroidered belts,	8 ...	36	0	0	2	11	2
Indigo, ...	424 m. 37 srs. 2 c.	46,798	5	11	2,339	14	5
	Total,	1,39,334	15	0	4,817	14	5
Total Imports and Exports. ...		1,40,484	15	0	4,932	14	5

These two Statements are derived from the Custom House Registers, and can therefore be relied on.

No. 8.

Statement of Goods, exported to Cabool across the N. W. Frontier, during the month of March, 1841, the same being British manufactured.

Names of Articles.	Quantity.	Value.			Remarks.
		Rs.	As.	Ps.	
Long cloth, mus- lins, &c. }	5,255 pieces,	25,889	0	0	

No. 9.

Statement of Goods imported from Cabool across the N. W. Frontier, during the month of March 1841, the same being liable to the Custom Tax.

Names of Articles.	Quantity.		Value.			Amount of duty.			Remarks.
	Mds.	Seers.	Rs.	As.	Ps.	Rs.	As.	Ps.	
Assafœtida.	100	23	9,087	8	0	905	12	0	

No. 10.

Statement of Goods exported to Cabool across the N. W. Frontier, during the month of March, 1841, the same being Country produce, and liable to the Custom Tax.

Names of Articles.	Quantity.	Value.			Amount of duty.			Remarks.
		Rs.	As.	Ps.	Rs.	As.	Ps.	
Cloth pieces, silk and cotton. }	91,419 pieces	1,60,805	4	0	2,695	12	3	
Benares doputtas and brocades, &c. }	982 do.	21,259	10	3	1,593	10	8	
Indigo,	397 mds, 27½ sr.	43,838	5	4	2,191	14	7	
Gotah kenaree,	428 tolahs	1,087	9	6	54	6	1	
Shoes,	176 pairs	382	8	0	19	2	0	
Hides,	140	84	0	0	4	3	2	
Ivory,	35 seers	87	8	0	6	9	0	
Verdigrease,	25	59	6	0	5	15	0	
Cocoanuts,	1000	40	0	0	2	0	0	
Cassia,	7 mds.	245	0	0	6	2	0	
Sugar,	2 do, 20 seers	20	0	0	1	0	0	
Total,		2,37,909	3	1	6,580	10	9	
Total Imports and Exports,		2,46,996	11	1	7,486	6	9	
Ditto including British linen, }		2,72,855	11	1				

*Note to Mr. VINCENT TREGGAR'S Process of taking casts of Coins.
vide No. 110.*

I must not omit to observe, that the above process cannot be applied to all coins indiscriminately. Copper and brass coins are sometimes so much oxidated as to be unable to bear any pressure, and therefore would be broken if put in the press ; those of gold or silver are seldom endangered ; but still the operator must use a little discretion. Care must also be taken not to continue the pressure further than is required for the perfect copy of the coin, as after the latter has sunk to the full depth of the relief, a lateral extension takes place, which will injure it, as I have found by experience.

JOURNAL

OF THE

ASIATIC SOCIETY.

Of the early History of Sindh, from the "Chuch Namuh" and other authorities. By LIEUT. POSTANS, Assist. Pol. Agent, Shikarpore.

[Concluded from p. 197.]

CHAPTER V.

Origin of the tribe of *Soommah*—rule of the *Jams*—invasion of *Sindh* by *Shah Beg Urghoon*—and downfall of the *Soommah* dynasty.

The tribe of *Soommah*, they say, belonged to the tribe of *Ukrumeh* Origin of the tribe *Bin Issam Bin Ubbi Jahal*, and according to *Meer of Soommah*. *Massoom*, embraced *Islamism*; and were obedient to *Bin Cassim* when he arrived in *Sindh*, in the year 92 H. *Ukrumeh* traced his origin, as connected with *Jamsheed*, hence it is supposed their governors styled themselves *Jams*. Others again trace the origin of this tribe to *Sam*, the son of *Noah*, from which they derive their name *Sammahs*, or *Soommahs*.

They were *zumeendars* in *Sindh* of some importance, and on the downfall of the *Soomrah* dynasty, assumed the reins of government, with the title of *Jam*. Their capital city was *Tattah*.

Reigns of the *Jams*. The first of this family mentioned is

Jam Oonur,

who was, by the consent of the tribe of *Soommah*, proclaimed governor. *Mulck Ruttun*, one of the deputies of the kings of *Turkey* threatened *Seeostan*; *Oonur* defeated him, and after a reign of three years and six months died.

Jam Joonur Bin Babeenah

succeeded his brother in the government of the country. He appointed his brother and relations to various posts in his dominions;

his rule was established in *Sindh* until *Sooltan Ullahul-deen* sent his own brothers, *Uglugh Shah* and *Tartar Khan*, to subdue him. Before the arrival of this army, *Jam Joonur* was seized with quinsy and died; he reigned thirteen or fourteen years. *Ullahul-deen's* army reached *Bukkur*, took that fort, and then proceeded to *Seeostqn*.

Jam Kajee Bin Jam Joonur

succeeded his father, but was deposed by *Jam Khier-ud-deen Bin Jam Tumachee*, who with his father had been taken to *Delhi*, as a prisoner, by *Ullahul-deen*, in his descent upon *Bukkur*. He was just and good; he reigned some years and died.

Jam Babeenar.

After the death of *Jam Khier-ud-deen*, *Jam Babeenar* was, by the consent of the nobles, seated upon the throne. During his reign, *Sooltan Feeroz Shah*, who had conquered *Hindustan* and *Goojrat*, turned an ambitious eye towards *Sindh*, and marched to take possession of that country.

Jam Babeenar prepared to oppose him, and after a campaign of three months, the rainy season coming on, and the *Shah's* army beginning to suffer from the violence of the weather, and myriads of musquitoes, was obliged to fall back upon *Goojrat*.

After the rains he again attempted *Sindh*; the war was furious, but the *Shah* was at length successful. *Babeenar* was taken to *Delhi*, where he distinguished himself in the service of *Shah Feeroz*, who honoured him and restored him to the kingdom of *Sindh*. He died after a rule of fifteen years.

Jam Tumachee

succeeded his brother; he was a rich and indolent man. After a reign of thirteen years, passed in luxury and pleasure, he died of the plague.

Jam Sullahudeen.

In the beginning of this reign, the dwellers in the desert disturbed the frontiers of his dominions; he punished them, and reigned for a period of eleven years and some months; when he died.

Jam Nizam-ud-deen

succeeded his father. He was occupied in sensual enjoyments, and neglected his dominions.

The nobles conspired against him, drove him from the throne, and placed *Jam Alee Sheer* upon it in his stead. He fled towards *Goojrat*, and died upon the road.

Jam Alli Sheer Bin Tumachee

was just, bountiful, and learned ; he strengthened his power in *Sindh*, and the country prospered under his rule; but at length he gave way to luxury and ease. It was his practice to take his exercise on moonlight nights, and the rebellious nobles, *Sikunder Kirun* and *Futteh Khan*, (sons of *Tumachee*,) who were living in the desert, formed a plot, in which they were joined by some of the disaffected in the city of *Tattah*, to way-lay *Alli Sheer* and murder him. On the night of *Joomah*, the 13th of the month, *Jam Alli Sheer*, as usual, took boat and proceeded on the river ; when he was about to return to the city, these men rushed upon him with naked swords and slew him and his attendants, placing *Jam Kirun* on the throne. *Alli Sheer* reigned seven years.

Jam Kirun Bin Jam Tumachee.

This man did not conciliate the nobles of the city, many of whom he imprisoned and punished. He was afterwards murdered at the instigation of *Futteh Khan* and *Bin Sikunder Khan*, who usurped the throne.

Jam Futteh Khan

ruled with justice, and was renowned for his bravery and magnanimity. He reigned for fifteen years and some months, when he died ; he bequeathed the throne to his brother *Jam Tughluk Bin Sikunder Khan*.

Jam Tughluk, styled Jam Tughluk Shah.

He passed much of his time in hunting and traversing his dominions. The *Beloochees* in the neighbourhood of *Bukker* broke into rebellion, which *Tughluk* put down. He reigned for twenty-eight years, and died.

Jam Sikunder, son of Futteh Khan, and nephew of Tughluk Shah.

In the beginning of this reign a man named *Moobarik*, a connection of *Tughluk Shah's*, tried to usurp the sovereignty of the country, styling himself *Jam Moobarik* ; but was deposed by the nobles, after a reign of three days. *Sikunder* died after a reign of eighteen months.

Jam Raeduch.

After the death of *Sikunder*, this man came with a large force to *Tattah*, disclaiming any intention of seizing the throne, but to offer protection to the Mussulmans, promising allegiance to whomsoever they should elect as *Jam*; not finding a fit person, they elected *Raeduch* himself to the sovereignty. In eighteen months he subdued the whole of *Sindh* to his authority. When he had reigned for a period of eight years and a half, *Jam Sunjin* usurped the sovereignty, and killed *Jam Raeduch* by putting poison in his wine cup.

Jam Sunjin

was a prince noted for his beauty and pleasing deportment. It was foretold him by a holy *Durwesh* that he should govern *Sindh*; and on the death of *Jam Raeduch*, he was universally elected to the throne. The country flourished under his rule, and was more prosperous than it had ever been under his predecessors. The soldiers and subjects were happy and at peace; he encouraged learned and holy men, and once a week gave alms to the poor. He reigned eight years, and died.

Jam Nizam-uddeen, better known as *Jam Nundeh*.

In the year 866 H. 1461 A. D. on the 25th of the month *Rubeh* 866 H. 1461 A. D. *Ul-uwul* ascended the throne; he was well received by all classes, and became a powerful ruler. He was on terms of great intimacy with *Sooltan Hassan Lankar*, of *Mooltan*. At the end of this reign, *Shah Beg Urghoon* sent a large army from *Kandahar*, which laid waste most of the places of *Chundookeh* and *Sundeecheh*. *Jam Nundeh* prepared and dispatched a force to oppose this invasion; the forces met at *Dureh Rowul*, (known as *Julogeer*), where a great battle was fought, in which the brother of *Shah Beg* was killed, and his troops defeated. They fled to *Kandahar*, nor did they again molest *Sindh* during the time of *Jam Nundeh*. He passed the rest of his life in the society of *Moolahs*, and died after a reign of forty-eight years. The country was at his death torn with dissensions and rebellion.

Jam Feeroz.

After the death of *Jam Nundeh*, his son *Jam Feeroz* was a minor, and *Jam Sullahudeen*, the grandson of *Jam Sunjur*, wished to usurp

the throne, but was prevented by *Durya Khan*, a relative and prime minister of *Jam Feeroz*, aided by *Sirhung Khan*. The nobles of *Tattah*, with one consent, placed *Jam Feeroz* upon the throne of his father. *Jam Sullahudeen* fled to *Sooltan Muzuffir* of *Goojrat*, who was his kinsman, and favoured his pretensions to the government of *Sindh*. *Jam Feeroz* being young and inexperienced, neglected his affairs, and his court was composed of the gay and licentious. He passed most of his time in the *harem*, patronizing dancing girls and jesters. *Durya Khan* disgusted at his conduct, left the court, and went to his *jhageer* at *Kahan*. The affairs of the country, were speedily in a state of utter confusion, and the nobles of *Tattah* finding no longer any safety for the lives and property of themselves or families, wrote to the usurper, *Sullahudeen*, to come and seize the throne. *Sullahudeen* shewed the letter which contained this intimation to *Muzuffur Khan*, who dispatched a force with the former, with which he marched, took *Tattah*, and proclaimed himself *Jam*. *Jam Feeroz* repenting of his errors, fled with his mother to *Durya Khan* at *Kahan*, who levied troops from the tribes of *Belooch*, and other men of the desert; these joined with the armies of *Bukkur* and *Seeostan*, succeeded in expelling *Sullahudeen*, and once more placed *Feeroz* upon the throne of *Tattah*, where he remained for some years, until the country of *Sindh* was invaded by *Shah Beg Urghoon*, 926 H. 1519, A. D.

926 H. 1519 A. D. from which may be dated the termination of the
Termination of the *Soommah* dynasty. *Soommah* dynasty in the government of that country.

CHAPTER VI.

Shah Beg Urghoon—His origin—Death of his father, *Ameer Zulnoon*—becomes governor of *Kandahar*—*Baber Shah* expels him from *Kandahar*—he conquers *Tattah*, and becomes master of *Sindh*—Reinstates *Jam Feeroz* as governor of *Tattah*—*Sullahudeen* attempts to take *Tattah*, is defeated—his death—revolt of the *Dhareejas*—punishment of that tribe—drives the *Syuds* from *Bukker*—massacre of the *Beloochees*—death of *Shah Beg Urghoon*.

Shah Beg Urghoon was the son of *Zulnoon Urghoon*, *Bin Meer Hassan Bussein*, a noble in the service of *Sooltan* *Shah Beg Urghoon*—his origin. *Hussein Mirza*, of *Khorassan*, who gave him the government of the countries of *Ghoor* and *Zameendawur*. He had some difficulty in bringing the unruly inhabitants of the desert and the tribes of *Hizareh* to his authority; but after a war of about four years with these people, he completely subdued them; and *Sooltan Hussein Mirza* was so much pleased with his conduct, that he added the country of *Kandahar*, and the provinces of *Shah*, *Sitoonuk*, and *Urghoon*, to his rule.

His power increasing, *Sooltan Hussein Mirza* became jealous, and summoned *Ameer Zulnoon* to his presence, where he detained him under trifling excuses for some time. During his stay at that court, he formed a firm friendship with *Budeh Ul Zerman Mirza*, a noble, and relative of the king. Being at length disgusted with the delays and subterfuges used to detain him, he effected his escape to *Kandahar*, where he proclaimed himself independent. He was here joined by *Budeh Ul Zuman Mirza*, who had quarrelled with the king, (*Sooltan Hussein*.) *Ameer Zulnoon* married his daughter, thus strengthening the bonds of amity between them. After some time peace was concluded between these two chiefs and *Sooltan Hussein Mirza*. *Ameer Zulnoon* met his death in attempting to resist an

invasion under *Mahomed Khan Shibanee Uzbek*.
Death of Ameer Zulnoon. He left two sons, *Shah Beg* and *Mahomed Mukim*; the former by the consent of the nobles, succeeded his father as governor of *Kandahar*; he confirmed all the appointments held under his father *Ameer Zulnoon*, was wise, brave, and generous, patronizing learned men.

When *Mahomed Khan Shibanee* had conquered *Khorassan* he meditated an attack upon *Kandahar*, but *Shah Beg* sent ambassadors

to him, with letters of submission and presents ; he struck his image upon the coin, and begged permission himself to wait upon him. *Mahomed Khan* waived this ceremony, and being pleased with the conduct of *Shah Beg* and his brother, honoured their ambassadors, and dismissed them with dresses of honour, horses, tents, &c. for the two princes.

In the year 923 H., 1517 A.D. *Baber Shah* came from *Cabool* and *Ghuznein*, to conquer *Kandahar* ; the brothers 923 H., 1517 A.D.

were overpowered, and driven from their country, their father's treasury was pillaged, and a daughter of *Mahomed Mukim* (*Shah Begum*, she married *Kassim Kokeh*, who was killed in the wars of the *Uzbecks*) was taken to *Cabool*. *Baber Shah* left his brother, *Sooltan Nasir-ud-deen*, as governor of *Kandahar*, The brothers afterwards collected a large force, and retook *Kandahar*. (About this time *Mahomed Mukim* died.) *Baber Shah*, however, continued to invade *Shah Beg's* country, who was at length obliged to abandon

the possession of it, and having for some time *Baber Shah* expelled *Shah Beg* from *Kandahar*. contemplated the conquest of *Sindh*, even as far back as the time of *Jam Munde*, he prepared an army, and in the year 926 H. 1519 A.D., on the 11th of the month *Mohurrum*, crossed the river opposite *Tattah*. The army of *Jam Feeroz* under *Durya Khan* was routed, the latter taken, and *Tattah* fell to the arms of *Shah Beg*. He permitted his troops to pillage the city for nine days, the inhabitants being exposed to the licentiousness of the soldiery during that period ; on the intercession of *Hafiz Mahomed Shurreef* it was stopped.

Jam Feeroz leaving his family in *Tattah* fled to *Peerar*, whence he sent messages of submission to *Shah Beg* ; this latter not only treated him with the greatest kindness, but after settling the affairs of *Tattah*

Reinstates *Jam Feeroz* as governor of *Tattah*. appointed him its governor, placing one-half of the whole province of *Sindh*, viz. from *Lukie*, (which

is near *Sehwan*,) to *Tattah* under his dominion ; from *Lukie* higher up, he delegated to his own servants.

When he had settled the affairs of *Tattah* he proceeded to *Siemer*, *Sulakudeen* attempts but the usurper *Sullahudeen*, (who had before driven to take *Tattah*.

Jam Feeroz from the throne,) having collected a large force, threatened *Tattah*. *Shah Beg* sent a body of troops under his son *Mirza Shah Hussein* to reinforce *Jam Feeroz*.

Sullahudeen retreated but was pursued, and his troops overthrown ; his son, *Hybut Khan*, being killed. This affliction rendered the father desperate, and he also met his death in the same campaign, in an attack upon the *Moghuls*.

At this time *Sooltan Mahmoud Khan*, governor of *Bukkur*, wrote to *Shah Beg*, who had taken up his residence at *Baghbanan*, that the tribe of *Dhareejas* were in a state of rebellion, refusing to pay their taxes, and ill-treating the servants of *Shah Beg*, who were sent to collect them ; and that but for the fidelity of the *Syuds*, who had assisted *Mahmoud Khan* in repelling their attacks, *Bukkur* must have fallen into the power of those insurgents.

Shah Beg on hearing this, came himself to the neighbourhood of *Bukkur*, where he ordered the *Dareejas* to be punished.

Mahmoud Khan with the cruelty for which he was remarkable, cut off the heads of about 50 of these people and threw them from the walls of the fort, as a warning to the others.

The *Syuds*, who for many years possessed great power in *Bukkur*, excited the jealousy of *Shah Beg*. He removed them from the fort of

Bukkur to a place outside the walls, called *Lohurry*.

Shah Beg himself visited the fort, and directed a wall to be erected round it, with bricks from the ruins of *Alor*. The buildings in the vicinity of *Bukkur* belonging to the Turks and men of *Soommah* he also destroyed, employing the materials for the same purpose. At that time the fort was surrounded by water.

Having settled the affairs of *Bukkur*, *Shah Beg* turned his attention to the tribe of *Beeloochees*, who were in rebellion ; this he quelled by a

general slaughter of the tribe wherever they could be found. In forty-two towns and villages these people were put to the sword.

Shah Beg after this contemplated extending his power to *Gojrat* ; but hearing that *Baber Shah* had occupied *Kooshah*, intending to conquer *Hindustan*, he became thoughtful, and assured his followers that he was convinced, *Baber Shah* would not let him retain the conquest of *Sindh*, but would drive him and his family from all their possessions. A settled melancholy took possession of *Shah Beg*, and on the

28th of the month *Shuban*, in the year 928 H. 1521 A. D. he died, after a stormy reign in *Sindh* of two

Death of *Shah Beg*
Urghoon, 928 H.
1521 A. D.

years. His remains were taken to *Bukkur*, and thence to *Mecca*, where his son, *Shah Hussein*, erected a dome over them.

CHAPTER VII.

Mirza Shah Hussein Urghoon succeeded his father *Shah Beg*—conquers *Mooltan*—gives that country to *Baber Shah*—marches to *Kutch*—defeats *Kungar*—*Humayun Padshah* comes to *Sindh*—appoints *Yad Gar Nasir* to the fort of *Bukkur*—*Shah Hussein* brings *Yad Gar* over to his interests—Peace proclaimed between *Shah Hussein* and *Humayun*—The latter leaves *Sindh*—*Yad Gar* quits *Bukkur*—*Sindh* again reverts to *Shah Hussein*—he protects *Kamran Mirza*—death of the latter, and affection of his wife—death of *Mirza Shah Hussein*—and termination of the dynasty of *Urghoon*.

Mirza Shah Hussein Urghoon succeeded his father *Shah Beg* in the government of *Sindh*. His first act was to succeed his father. expel *Jam Peeroz*, who had rebelled, from the government of *Tattah*. This latter collected a large force, but was completely overthrown, and fled to *Gojrat*, where he died.

Shah Hussein acknowledged fealty to the power of *Delhi*, and caused the oration delivered on the installation of a prince (*khootbeh*) to be read in the name of *Baber Shah*, instead of his own. He took up his residence at *Tughlukabad*, near *Tattah*. Some rebellious amongst the tribes of the *Beloochees* at *Oobareh* and men of *Dihir* being put down by the sword, *Shah Hussein* turned his attention to the conquest of *Mooltan*. In the year 931 H. 1524 A. D. he reached the fort of *Sewrae*, which he took and destroyed. He then proceeded to the fort of *Moos*, near *Kootab*, the governor of which, *Sheikh Rohillah*, proffered submission; 500 horse, under *Mohib-i-Tukhan*, were dispatched in advance to *Mooltan*, and *Shah Hussein* followed to *Oochek*. This fort he besieged, and although the troops of *Mahmood Lankar*, governor of *Mooltan*, made a brave resistance, the fort was taken, and a general massacre followed. At the intercession of some holy men the slaughter was stayed, but the fort was levelled to the ground, and the gates and other materials placed in boats and conveyed to *Bukkur*. When *Mahmood*

Lankar heard of the fall of *Oocheh*, he marched to attack *Shah Hussein*, but shortly after met his death by poison. He was succeeded by his son, *Hussein Lankar*, who was a minor.

Mirzah Shah Hussein closely besieged the fort of *Mooltan*; the siege lasted for a year, and is described as having been attended with all the horrors of famine; one ox's head sold in *Mooltan* for 100 *tankah*, one maund of wheat 100 *tankah*. The inhabitants principally subsisted upon the skins of oxen; dogs and cats were esteemed as great delicacies in *Mooltan*, as *huhwah* (sweetmeat). Many of the wretched inhabitants threw themselves from the walls and sought protection from *Mirza Shah Hussein*.

At length the fort was taken, a general massacre ensued of all males from the age of seven to seventy, and lasted twelve days. When the rage of *Shah Hussein* had somewhat abated, he stayed this inhuman slaughter, and spared the lives of the survivors.

Hussein Lankar, the prince of *Mooltan*, was captured, and after a stay of ten months, during which period he employed himself in stripping all the nobles and followers of *Mahmood Lankar* of their property, and imprisoning others, *Mirza Shah Hussein* returned to *Bukkur*, leaving *Khajee Shumsudeen* and *Dost Meer* at *Khor* with 200 horse, 100 infantry, and 100 artillery to garrison *Mooltan*. He had only arrived at *Bukkur* a short time, however, when he received intelligence of the revolt of the governor of *Mooltan*, who had gone over to *Baber Shah*;

Gives Mooltan to Baber Shah. but being at the same time apprised of an attack in another quarter of his dominions, at *Tattah*, he preferred presenting the country of *Mooltan* to *Baber Shah*, as he found its government more than he could manage. The nobles of *Tattah* on the arrival of *Mirza Shah Hussein* at *Bukkur*, had informed him that *Kungar* was collecting a force to attack *Tattah*. On receiving this intelligence, he immediately proceeded to that place, and before the arrival of *Kungar*, marched to attack him. When he arrived near the country of *Kutch*, his army suffered much for want of grain; but *Kungar's* army shortly after was overthrown, and the country pillaged by *Shah Hussein* of flocks, herds, and property of every description, and the inhabitants of every city, town, and village put to the sword.

In the year 947 H. 1540 A. D., *Humayun Padshah*, attended by *Mahmoud Kamran Mirza*, being driven out of *Hind* by *Sheer Khan*, came to *Lahore* with the intention of making an incursion upon *Sindh*, on the 13th of *Ramazan*. In the above year he halted with his force at *Paburloo*, in the neighbourhood of *Bukkur*. *Sooltan Mahmood*, governor of the fort, laid waste the surrounding country, anchored the boats under the walls of the fort, and prepared for a vigorous defence. *Humayun* summoned him to surrender, but he refused; the *Padshah's* servants, however, managed to trifle with *Mahmoud*; and he sent 500 *khirwars* of grain to *Humayun's* camp. This latter finding his army suffer much for want of supplies, wrote in friendly terms to *Mirza Shah Hussein* to come to him at *Bukkur*; but after waiting for five or six months in expectation of seeing him, he was disappointed, for *Shah Hussein* evaded the interview, and cut off all supplies from the *Padshah's* camp. This, coupled with the swells of the river, occasioned great suffering amongst his troops, and desertions became frequent. He proceeded to *Seeoostan*, leaving the siege of *Bukkur* in the hands of *Yad Gar Nasir*, who took the fort. At this period, *Mirza Shah Hussein* wrote to *Yad Gar Nasir*, offering terms of friendship, promising him his daughter in marriage, and to secure him the kingdom of *Sindh* after his death; enticed by these promises *Yad Gar Nasir* threw off his allegiance to the *Padshah Humayun*.

Humayun on hearing this, immediately returned to the neighbourhood of *Bukkur*, where he summoned *Yad Gar* to his presence—he obeyed the order.

Through the intervention of *Benam Khan*, who came from *Goojrat* to the service of the *Padshah*, peace was declared between him and *Mirza Shah Hussein*.

Humayun agreed to leave *Sindh*, on condition of receiving 100,000 *miskals* in money, and all the necessaries for his army to *Kandahar*, 300 horses, 300 camels, &c. This demand was acceded to, and with great rejoicings and promises of friendship, the *Sindhians* witnessed the passage of the river by the *Padshah's* army, at a place called *Joon*, where a bridge had been erected on the 7th of the month *Rubeh ul Uwul*, in the year 951 H. 1544 A. D.

Shah Hussein after this, evaded the promise of giving his daughter *Yad Gar* ^{quits} *Bukkur*, and *Sindh* again reverts to *Shah Hussein*. *Mirza Shah Hussein*, who appointed *Meer Shah Mahmoud Urghoon* governor of *Bukkur*.

Kamran Mirza being in rebellion with *Humayun Padshah*, son of *Baber Shah*, fled to *Sindh*, and sought protection from *Mirza Shah Hussein*, whose daughter, *Joirjak Begum*, he had previously married. *Shah Hussein* appointed him for a residence the place called *Shuhperlah*, on the river to the west of *Bukkur*, with the purgunnah of *Butthoora* for the expences incidental to his household. But *Kamran Mirza* determined to make a pilgrimage to *Mecca*, and there end his days. *Shah Hussein* tried to prevent his daughter accompanying him; but her conjugal affection resisted all his persuasions to effect a separation. She observed to her father: "that he had given her to *Kamran Mirza* for wife when the latter was a powerful prince, and now that misfortunes had assailed him, he wished to separate them; but that while they lived she would never desert her husband." *Shah Hussein* finding threats and intreaties alike unavailing, gave them every necessary for their journey, and *Kamran Mirza* died at *Mecca* in the year 964 H. 1556 A. D. His faithful wife only survived him a few months.

Mirza Shah Hussein in the latter days of his life became very infirm, and suffered much from palsy, from which disease he sought relief in intoxication, and dissipated men began to assume an ascendancy at his court. The men of *Urghoon* and *Tirkhan* being dissatisfied, collected round *Mirza Eessan Tirkhan*, governor of *Tattah*, and in the year 962 H. 1554 A. D. broke into open insurrection. *Shah Hussein* sent *Mahmoud*, governor of *Bukkur*, to quell this rebellion; but he privately made terms with *Mirza Eessan Tirkhan*, by which after the death of *Shah Hussein*, (an event they plainly saw was fast approaching,) they should divide the government of *Sindh* between them.

Mirza Shah Hussein died on Monday on the 15th of *Rube-ul-Uwul* in the above year, being on his road to *Seeoostan*, (where, by the advice of his physician, he

Death of *Mirza Shah Hussein*. 962. H. 1554 A. D.

was proceeding,) at a place called *Allipootreh*. He reigned 34 years, and his remains were conveyed to *Mecca*, where they were buried near those of his father, *Shah Beg*. His death closed the dynasty of *Urghoon*.

CHAPTER VIII.

Mirza Eessan Tirkhan—dissensions between him and *Mahmoud Khan of Bukkur*—*Tattah* fired and pillaged by the *Portuguese*—peace concluded between *Mirza Eessan* and *Mahmoud Khan*—brief history of the former dissensions between his sons—death of *Mirza Eessan*—succeeded by his son *Mirza Mahomed Bakee*—at enmity with *Mahmoud Khan*—origin of the latter—*Mahomed Bakee*—opposed by his brother, *Khan Baber*—is murdered by *Mahomed Bakee*—*Akbar Padshah* sends *Mohib Ally Khan* to besiege *Bukkur*—*Mahomed Bakee's* a submission to the *Shah*—death of *Mahmoud Khan*—*Bukkur* becomes a *jahgeer* of the kingdom of *Delhi*—*Mirza Mahomed Bakee* destroys himself.

Mirza Eessan Tirkhan.

A year after the death of *Shah Hussein*, rivalry and dissension arose
 963 H. 1555 A. D. between *Mirza Eessan Tirkhan*, governor of *Tattah*,
 Dissensions with. *Sooltan Mahmoud*, and *Sooltan Mahmoud*, governor of *Bukkur*; the
Sooltan Mahmoud. pretensions of the former being favoured by the men of *Urghoon* and
Tirkhan. *Mirza Eessan* marched to attack *Bukkur*, in which
 fort *Mahmoud* entrenched himself, and was besieged for 15 days; but at
 this time intelligence reached the former, that the *Portuguese* merce-
 naries, whom he had left at *Tattah*, had set fire
Tattah fired and pillag- to, and pillaged that city, he immediately raised
 ed by the *Portuguese*. the siege, and returned to *Tattah*. *Mahmoud* pursued him as far as
Seecoostan, the country in the vicinity of which he laid waste. On his
 arrival at *Tattah*, *Mirza Eessan* learnt that the *Portuguese* hearing
 of his approach, had decamped; he repaired the walls of the city, and
 built a small fort to command the creek. After other engagements
 between *Mirza Eessan* and *Mahmoud*, peace was concluded be-
 tween them; the forces of the *Mirza* returning to
Tattah, and those of *Mahmoud* to *Bukkur*, which
 places they occupied, and continued to divide the
 government of the country between them. *Mirza Eessan Tirkhan*
 History of *Mirza* is described as having been educated by *Shah Beg*,
Eessan. in whose service and that of his son, he attained the

rank of *ameer*, and on the death of the latter, succeeded to the government of *Tattah*. He was a good and merciful man, noted for his courage and energy. Two of his sons, *Mirza Mahmoud Bakee*, and *Mirza Mahomed Taleb* were at enmity; the latter being favoured by his father, defeated *Mahomed Bakee*, who fled to *Bukkur* and sought protection from *Mahmoud*. *Mahomed Saleh* was shortly afterwards murdered by a *Beloochee*, who had sworn not to wear his turban, until he had revenged himself for some injury committed upon his father and family.

Mahmoud interceded with *Mirza Eessan* for the forgiveness of *Mahomed Bakee* who returned to *Tattah*, and was kindly received; but

Death of *Mirza Eessan*. *Mirza Eessan* before his death, which happened in the year 974 H. 1566, A. D. wished to settle the suc-

cession upon his youngest son, *Khan Baber*, as he considered *Mahomed Bakee* of too tyrannical a disposition to rule.

Mirza Mahomed Bakee Tirkhan

succeeded his father, *Mirza Eessan Tirkhan* as governor of *Tattah*, and like him continued alternately at peace and war with *Mahmoud Khan*, governor of *Bukkur*. A brief account of the career of this man, who for nineteen years divided the government of *Sindh*, with two of the rulers of *Tirkhan*, will not be out of place in this part of the history.

Mahmoud Khan was the son of *Meer Fazil Kukultash*, in the service of *Meer Zulnoon*; his forefathers were residents of *Ispahan*. *Meer Fazil* had five wives, by each of whom he had a son. *Mahmoud's* mother was an *Afghaun*. At the early age of fourteen he gave promise of great courage, and attracted the attention of *Shah Beg*, who took him into his service; he accompanied him in the *Sindh* campaign, where he distinguished himself above all the nobles of *Shah Beg's* army; he subsequently became a governor of *Bukkur* during the time of *Mirza Shah Hussein*, whom he faithfully served, until he leagued with *Mirza Eessan Tirkhan* to divide the government of the country between them after *Shah Hussein's* death. The history of these proceedings, and the feuds and jealousies which arose between these chiefs, have been related, till the accession of *Mirza Bakee*.

Mirza Mahomed Bakee was opposed by his youngest brother, *Khan Baber*, who aspired to the government of the country. He procured assistance from *Mahmoud Khan*, and attempted an attack upon *Tattah*, in which he failed; he was afterwards treacherously murdered by his brother, who proved himself, as his father had predicted, a great tyrant. Hearing that *Akbar Padshah* had arrived at *Lahore*, and had dispatched *Mohib Ally Khan* and *Mujahid Khan* to *Bukkur*, where they besieged *Mahmoud Khan*, and fearing for the safety of his own possessions at *Tattah*, he sent letters, acknowledging his fealty to *Akbar*, and according to some historians, even sent his daughter, for the service of the king's harem.

Mahmoud Khan endured a close and harassing siege, during which the garrison suffered from pestilence and famine. In the year 982 H. 1574 A. D., he began to suffer from dropsy, and wrote to the *Padshah* to send some one to whom he might deliver over the fort of *Bukkur*, which *Mohib Ally Khan* had not yet taken. The *Padshah Akbar* dispatched *Kessoo Khan*; but *Mahmoud* died before his arrival at *Bukkur*, on Saturday the 8th of the month *Sufur* in the above year.

From this date *Bukkur* became a *jahgeer* of the power at *Delhi*, and various rulers were sent to govern it. *Mirza Mahomed Bakee* became insane; at least the deeds of cruelty he committed were so enormous, that they can only be ascribed to madness. The loss of a favourite son, (*Shah Rookh*), increased his malady, and he destroyed himself by rushing on his own sword. He died in the year 993 H. 1583 A. D. after a rule of 19 years. His eldest son, *Pabundah Beg*, inheriting the malady of the father, was declared incapable of governing, and the power descended to the son of *Pahbunde* and grandson of *Mirza Bakee*.

CHAPTER IX.

Mirza Janee Beg Tirkhan—*Akbar* sends *Khan Khanan* to *Sindh*—siege of *Schwan*—defeat of the war boats—siege of *Bohurry*—destruction of *Tattah*—*Janee Beg* treats for peace—peace concluded—*Janee Beg* accompanies *Khan Khanan* to the presence—*Akbar Padshah* honours *Janee Beg*—death of *Janee Beg*—*Sindh* becomes a dependency of the throne of *Delhi*—*Mirza Ghazie Beg Tirkhan*—revolt of *Abul Cassim*—the *Padshah* sends for *Ghazee Beg*—he proceeds to *Agra*—additional power—repairs to *Kandahar*, where he is murdered—his generosity—rulers deputed by the *Delhi* sovereigns of the family of *Timoor* until the accession of the *Kalonas*—their rule—accession of the *Talpooras*.

Mirza Janee Beg Tirkhan.

His first act was to punish with studied cruelty, the accused murderers of the late *Mirza*. His uncle *Muzuffir Khan* disgusted at his conduct, collected a force to attack *Tattah*; but was defeated. *Bukkur*, as was before mentioned, after the death of *Mahmoud Khan*, became a

999 H. 1590 A. D.
Khan Khanan sent
to *Sindh*.

dependency of the kingdom of *Delhi*, in the year 999 H. 1590 A. D. *Akbar Shah* gave it as a *jahgeer* to *Khan Khanan*, with orders to reduce the governor of *Tattah* (*Janee Beg*), also to his authority.

The *Shah* had previously written to *Janee Beg* to come to the presence, and proffer allegiance, a performance of which order the latter evaded. *Khan Khanan* first determined to take the fort of *Seh-ran*, as it commanded the passage of the river, and then march to attack *Tattah*. He had, however, scarcely commenced the siege, when intelligence reached him of the march of *Janee Beg*, with a countless army, to the relief of the fort. *Khan Khanan* raised the siege of *Seh-wan*, and proceeded to meet *Janee Beg*, who at a place called *Bohurry*, (higher up than *Nussurpoor*,) had thrown up a fort, and strengthened his position. When *Khan Khanan* arrived within six *koss* of that place, he learnt that *Janee Beg* had 300 war boats with him, commanded by *Khusroo Khan* and other nobles.

Khan Khanan threw up five or six small mud forts, which he mounted with guns, on the bank of the river, commanding the passage of the boats. On a night of the month *Shuwal*, 999. H. 1590 A. D. the action commenced, the shot striking the *Sindhian* boats, threw them into confusion; eight or nine were

Ascent of the war
boats.

captured and their crews slaughtered. In the morning the boats of *Mirza Janee*, commanded by *Khusroo Khan*, finding the passage of the river in the face of the guns impracticable, retreated, but were pursued by the *Khan's* boats, and although *Khusroo Khan* behaved well, and shewed good generalship, many of his fleet were taken, and the *Portuguese* mercenaries and other soldiers slaughtered. In short, *Janee Beg* was defeated and retreated to *Bohurry*, where he was invested by *Khan Khanan*. From this place he

Destruction of
Tattah.

wrote to his son at *Tattah* to destroy that city; it was fired in various places, and in a month was a

complete ruin, and the country laid waste: this was done with the intention of annoying the invaders. Repeated engagements ensued, in which *Janee Beg's* forces were always worsted; he was driven from one stronghold to another, his last stand being at *Oonurpoor*. Here *Khan Khanan* came himself, and *Janee Beg* was closely besieged; finding his soldiers suffer, and all his efforts to repel the

Janee Beg treats
for peace.

Khan's army unavailing, he at last sued for peace, promising to surrender thirty boats and the fort

of *Sehwan*, intreating permission at the same time, to be allowed to proceed to *Tattah*, where he would see *Khan Khanan*, and settle other preliminaries. This indulgence was granted by the *Khan* contrary to the advice of his nobles, who represented that *Janee Beg*

Peace concluded. wished only to gain time in order to collect fresh troops; but *Khan Khanan* confident in his power

to crush *Janee Beg*, and anxious to avoid the useless waste of life, which a protraction of the war would occasion, acceded to the terms offered by the *Mirza*. The two chiefs afterwards met at a place called *Futtebagh*, where they displayed every mark of friendship and consideration towards each other. *Khan Khanan* proceeded to *Tattah*, the affairs of which place he settled, leaving *Dowlut Khan* and *Khawgeh Mukim* to preserve the *Shah's* authority. *Khan Khanan* having expressed a desire to behold the sea, embarked with *Janee Beg*

Accompanies *Khan*
Khanan to *Agra*.

at the port of *Lakurry*; after a short excursion they returned, and in obedience to orders, proceeded to

the presence of *Akbar Shah*, where they arrived in the month of *Jumadee-ul-Sanee*, in the year of the H. 1001, A. D. 1592.

1001 H. 1592 A. D.
Is honoured.

Akbar Padshah honoured *Janee Beg*, making him

a commander of five thousand, and styling him *Khusroo Shah*; he treated him with every demonstration of kindness.

1008 H. 1599 A. D.

In the year 1008 H. 1599 A. D. when the king marched to the *Deccan*, and took the forts of *Ahmednuggur*, *Ookleh*, and *Asserghur*, *Mirza Janee Beg* died of phrenzy. He was buried at *Tattah*, and his son *Mirza Ghazee* succeeded him in the government of the country.

Dies, and *Sindh* ceases to be an independent government.

From this date, the whole of the country of *Sindh* became a dependency of the kingdom of *Delhi*, and ceased to be an independent government. The rule of the tribe of *Tirkhan** embraces a period of 39 years.

Mirza Ghazee Beg Tirkhan

after the death of his father, by order of the *Padshah*, succeeded to the government of the country of *Sindh*. He was young, but at the beginning of his rule shewed all the vigour and ability of riper years. He replenished the treasury and resources of the country, which during his father's reign had been squandered and allowed to go to ruin.

Revolt of *Abool Cassim*.

Abool Cassim, son of *Shah Cassim Khan Urghoon*, (who for years possessed *Nusserpore* and during the life of *Mirza Janee* also had *Neirunkote*,) rose in rebellion against *Mirza Ghazee Beg*, and having plundered some merchants who were travelling from *Tattah*, the *Mirza* wrote to him for an explanation of the outrage, to which he received an offensive reply. *Ghazee Beg* thereupon marched a force to *Nusserpore*, but by the intervention of the father, (*Shah Cassim Khan*,) peace was concluded between his son and *Ghazee Beg*. The latter being afraid of the power of *Abool Cassim*, caught him by stratagem, put out his eyes, and made him prisoner. At this time, ambassadors arrived from *Akbar Padshah*,

The *Padshah* sends for *Ghazee Beg*.

to summon *Ghazee Beg* to his presence; but he excused himself, as the affairs of the country yet required much of his attention. In two years after his father's death things were in a prosperous state. The unfortunate *Abool Cassim*, aided by *Jaffer Khan*, attempted to escape, but was recaptured, and the latter killed. Again intelligence was received at *Tattah* that the *Padshah* being impatient, had dispatched the *Nuwab Syud Khan*,

* i. e. As independent governors.

with orders to bring the *Mirza* to the presence; some of the nobles expressed a desire to rebel against the *Padshah's* authority, and only regretted their want of means to assemble a force for that purpose. *Ghazee Beg's* prudence, however, silenced their ambitious projects, Proceeds to Agra and before the arrival of *Syud Khan*, he started for *Agra*, and met the latter at *Bukher*, from whence they proceeded together, and arrived at *Agra* in the year 1013 H., 1604 A. D.

Mirza Ghazee was honoured* and treated with the same consideration which marked his father's stay at the royal court. The country of *Sindh* was declared to be a *jahgeer*, and bestowed upon him. On the accession of *Shah Jahangir*, 1014 H. 1605 A. D. the government of the country of *Kandahar*, part of *Mooltan*, and the fort of *Sehwan* Additional power. were added to his authority, with additional rank. The affairs of *Kandahar* requiring his attention, he proceeded to that country, appointing *Khusroo Khan*, governor of Repairs to Kanda- *Tattah* during his absence. This man appropriated the revenues to his private purposes, which being reported to *Ghazee Beg*, he sent *Hindoo Khan* to supersede him, and to take the management of affairs in his stead. *Mirza Ghazee* in the very height of his fame and prosperity was murdered by a slave Is murdered 1021 H. 1612 A. D. of his own household, named *Abool Lutteef*, in the year 1021 H. 1612 A. D. He left a great name behind him for generosity and bravery, and in his praise, is the following couplet:—

“Alas! a rose has been scattered by a slave.”

It is reported of him that he gave all his money to his subjects, and His generosity. although he had the revenues of *Sindh*, *Kandahar*, and part of *Mooltan*, he was always poor. His minister of finance once represented to him that his accounts, which had not been inspected for six months, were in confusion, and that he had not the means of providing for the *Mirza's* household expenses. *Ghazee Beg* tore the paper which was presented in pieces, saying: “that for himself God would provide him with food; but the public money was alone the property of the subject.”

* *Jahangir* even asked him his advice as to the measures he might pursue with his son *Khusroo*, then in rebellion; this is mentioned as a proof of the esteem in which the Emperor held him.

His remains were brought to *Tattah*, and interred near those of his father. After his death the *Delhi* kings, from the time of *Jahangir* until the accession of the *Kaloras*, sent various nobles as deputies to rule in that country.

Mirza Rustum

was deputed by *Jahangir*, after the death of *Ghazee Beg*, to proceed to *Tattah* as governor of *Sindh*; he had before been governor of *Zumeendarwar* and *Mooltan* during the time of *Akbar Padshah*. It is said that *Jahangir* sent with him 5,000 horse, and two lacs of rupees to assist him in replenishing the treasury, and settling the affairs of the country; but he proved himself unfit to govern, and was dismissed. He was succeeded by *Moosty Khan*, also dismissed; he by *Meer Bayeozzeed*, 1028 H. 1618 A. D., who had been formerly *Faujdar* of 1028 H. 1618 A. D. *Bukkur*. After him *Nuwab Shurf-ul-Mulk*, in the year 1035 H. 1625 A. D. During his time, the son of *Jahangir** being in rebellion, came to *Tattah*, where he wished to reside, but *Shurf-ul-Mulk* opposed him and some conflicts ensued.

Mirza Eessan Tirkhan, son of *Khan Baber*, and grandson of the former governor of the same name.

He was concerned with *Abool Cassim*, in the revolt against *Mirza Ghazee Beg*, and after the capture of the former, entered the service of *Jahangir*, who honoured him; and in reward for various services performed, made him a commander of 4,000 horse, and in the year 1037 H. 1627 A. D., (the last of the reign and life of *Jahangir*,) he was appointed governor of *Tattah*, in which situation he died, during the reign of *Shah Jehan*.

Nuwab Ameer Khan.

In the beginning of his rule he had some differences with the *zumeendars*, but he settled the affairs of the country, and was a good and just man. So little of interest is recorded in the histories of the succeeding governors, that it will be sufficient to mention them in chronological order:—

* Probably *Khurram Khan*, afterwards *Shah Jehan*, who rebelled against his father in 1624 A. D.

Date of Accession.

6th. Murab Muzuffar Khan, not known.

7th. Syud Ibrahim,	...	1057 H. 1647 A. D.	{ During this rule <i>Aurung-</i> <i>zebe</i> mounted the throne.
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8th. Jafur Khan,	...	1063 H. 1652 A. D.
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9th. Kabad Khan,	...	1069 H. 1658 A. D.
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10th. Nuwab Lashkar Khan,	...	1071 H. 1660 A. D.
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11th. Ghuzunfur Khan,	..	1075 H. 1664 A. D.
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12th. Syud Izut Khan,	...	1080 H. 1669 A. D.
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13th. Abool Nusrut Khan,	...	1082 H. 1671 A. D.
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14th. Sahadut Khan,	...	" "
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15th. Syud Izut Khan,	...	1084 H. 1673 A. D.
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16th. Khan Zad Khan,	...	1090 H. 1679 A. D.
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17th. Sirdar Khan,	...	1095 H. 1683 A. D.
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18th. Mureed Khan,	...	1099 H. 1687 A. D.
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19th. Zaburdust Khan,	...	1101 H. 1689 A. D.
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20th. Aboo Nusrut Khan,	...	1103 H. 1691 A. D.
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21st. Ifuz Ali Khan,	...	1113 H. 1701 A. D.
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22d. Saheed Khan,	...	1114 H. 1702 A. D.
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23d. Ameer-ud-deen Khan,	...	" "
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24th. Yuzuf Khan,	...	1115 H. 1703 A. D.
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25th. Ahmed Yar Khan,	...	1116 H. 1704 A. D.	{ During this rule <i>Alumgeer</i> died, 1118 H. and was suc- ceeded by <i>Ba-</i> <i>hadur Shah</i> .
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26th. Nuwab Saheed Khan,	...	1119 H. 1707 A. D.
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27th. Nuwab Moheen Khan,	...	1121 H. 1709 A. D.
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28th. Nuwab Maheen Khan	...	1123 H. 1711 A. D.
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29th. Nuwab Shakir Khan,	...	1124 H. 1712 A. D.	{ <i>Bahadoor</i> <i>Shah</i> died 1124 H.
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30th. Khwaja Kulleel Khan,	...	not known.
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31st. Attar Khan,	...	" "
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32nd. Lootuf Ali Khan,	...	" "
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33rd. Shoojat Ali Khan,	...	" "
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- 34th. Nuwab Azim Khan, ... 1128 H. 1715 A. D.
 35th. Mohabut Khan,... ... 1132 H. 1719 A. D.
 36th. Sooltan Mahomoud Khan, not known.
 37th. Serf Ullah Khan, ... „ „
 38th. Dileerdil Khan,... ... 1143 H. 1730 A. D.
 39th. Himmut Dileer Khan,... „ „

The above appear to have been *Sobadhars* who farmed the revenue, at the same time exercising all the functions of governors. The last of these mentioned as preceding the *Kaloras*, is *Sadik Alli Khan*, who abandoned his contract from inability to perform it, and it was taken up by *Noor Mahomed Ubbaseer Kalora*, son of

Noor Mahomed Kalora, 1st of the family who ruled 1149 H. 1736 A. D.

Yar Mahomed in the year 1149 H. 1736 A. D. He was the first of the family invested with power as a ruler in *Sindh*, and although in his father's time the *Kaloras* were of some importance as *zumeendars*, their *jahgeer* was at *Futtehpoor*.

This family trace their origin to *Abbas*, the uncle of the prophet, whence it descends through various generations to *Adam Shah* of *Beelooch* extraction, a *Sheikh* of great repute, who possessed many disciples in *Sindh*, and who was the founder of the prosperity and power which afterwards attended the *Kaloras* in that country.

Noor Mahomed Kalora.

The beginning of his government was attended with constant feuds and strife with the tribes of *Burhoe* and *Dawood Pootreh*, (*Belooches*), the cause of dispute being boundary of territory. About the year 1150 H.

Siege of *Noor Mahomed*.

1737 A. D. *Nadir Shah* when he visited *Sindh*, took *Noor Mahomed* prisoner; but on his paying a crore of rupees to the emperor, he was released and restored to his possessions, with the additional title of *Kullie Khan*.

Nadir Shah mulcts him a crore of rupees.

After this he became firmly settled in the government of the country.

After the assassination of *Nadir Shah*, *Sindh* became subject to *Ahmed Shah Afghan Sudoozie*, king of *Cabool*. *Noor Mahomed* was succeeded by his son *Murad Yab Khan*, who only ruled however for a short time, and was succeeded by his brother *Ghullam Shah*.

Sindh subject to *Cabool*.

In the commencement of his reign he was employed in putting down an insurrection under his brother *Uttur Khan*; but having settled the dissensions and civil discords in *Sindh*, he made an incursion upon

Cutch, rendered remarkable for the great battle of Battle of *Jharra*.

Jharra, which was fought with *Rao Gore* upon the occasion. He died after a rule of 17 years. His brother *Uttur Khan* seized the reins of government, but only retained them for a short time, and was succeeded by *Surafrasz Khan*, son of *Ghullam Shah*.

Shortly after coming to power, he allowed his mind to be poisoned by one *Rajah Leckie* against a chief of distinction in his service, named *Byram Khan Talpoor*. *Byram* being informed of the threatened evil, took counsel with his sons *Sobhdar* and *Bejur* Murders *Byram* and his son *Sobhdar*. to avert it; but *Surafrasz* put both *Byram* and his son *Sobhdar* to death; *Bejur* fled to *Mecca*.

Futteh Alli Khan, the son of *Sobhdar* raised an insurrection to revenge his father's death, and *Surafrasz Khan* fled *Futteh Ali Khan* drives out *Surafrasz*. to the fort of *Hyderabad*, where he was imprisoned.

His brother *Mahomed Khan* succeeded him for a short time; but was deposed by *Ghullam Nubbee*, brother of *Ghullam Shah*. *Bejur Khan Talpoor*, son of *Byram*, at this time arrived from *Mecca* at *Neirunkote*, and *Ghullam Nubbee* sought an opportunity to destroy

him. *Bejur* having collected followers an engagement ensued, in which *Ghullam Nubbee* was killed, and Death of *Gullam Nubbee*.

Bejur Khan became master of *Sindh*, putting *Abdul Nubbee* placed in power. *Nubbee*, the brother of *Ghullam Nubbee*, in his brother's place, as governor of the country. *Abdul Nubbee's* first act was

to destroy *Surafrasz Khan*, *Mahomed Khan*, *Uttur Khan*, and *Meer Mahomed*, at *Hyderabad*, where they were imprisoned.* His next, to send *Ijut Khan* with a force to attack *Bejur Khan*; the former

was defeated. *Abdul Nubbee* afterwards murdered Murders *Bejur Khan*—the *Talpoors* drive out the family of the *Kaloras*, &c. *Bejur Khan*, when the *Talpoors* drove out *Abdul Nubbee*, putting the affairs of the country in the hands

of *Futteh Alli Khan Talpoor*, son of *Sobhdar* and grandson of *Byram*, in which *Timoor Shah* confirmed him. He gave a share of his power

* This wholesale system of putting princes out of the world, is vouched for in the "*Futteh Nameh*."

to each of his brothers, *Ghullam Ali*, *Kurm Ali*, and *Murad Ali*. *Futteh Ali Khan* and *Ghullam* died; the former in 1801 A. D. 1216 H., and the latter in 1811 A. D. 1226 H. *Futteh Ali* left a son, (*Sob-dhar*,) and *Ghullam* also (*Mahomed*,) who with their uncles, *Murad Ali* and *Kurum Ali*, share the government of *Sindh*, with the title of *Ameers*.

NOTE.—It is impossible to add to the already very luminous and interesting history given by Dr. J. Burnes in his visit to the Court of Sindh, of the rulers of the families of the Kaloras and Talpuras; as my paper would not however have been complete without some notice of their dynasties; I have compressed them into a close and small space, leaving out most of those incidents which have been so graphically described by Dr. Burnes.

T. P.

Notes on the Manners and Habits of the Torkoman Tribes, with some Geographical Notices of the Country they occupy.—By EDWARD STIRLING, Esq. B. C. S.

The *khonat* of *Khiva* has been described by Mr. M. Mouraviev, who was sent by Russia as an envoy to the Khan, at great length, and he has given considerable interest in the deplorable tale of his sufferings. A barbarous nation, in the lowest state of civilization, can have very few objects to engage much attention; and if we except their peculiar manners and customs, and mode of warfare, they are entirely destitute of attractions to the inhabitant of a more refined atmosphere. Without antiquities, edifices, laws, learning, science, arts, and commerce, they have little to *satisfy* or *create* curiosity.

The Torkomans bear the greatest resemblance of all other nations to the Arabians; but they are not decorated with their antiquity of origin; their celebrity, as conquerors, as legislators, and as fanatics; their learning, and their reputed science. While the Arabian *Khaliffs* ruled as the *vicegerents* of Mahomed, the Torkomans were reckoned among the number of their slaves. Their manners are similar; they are equally the children of the Desert, inured to fatigue; pride themselves on their horses and mares; infest the high roads for the purpose of plunder, and enslaving their victims; war among themselves;

manufacture their own tents, clothes, and horse furniture ; tend large flocks of cattle ; move from place to place ; cultivate small portions of land ; eat horse and camel flesh ; and make distant excursions.

They differ from the Arabs yet in several points ; they are more wealthy ; they have less respect for their ancestors ; they have not that romantic sort of love for the other sex ; they do not hold the rights of hospitality to be so essentially incumbent upon them ; they are not so strongly impressed with the obligation of the law of *lex talionis* ; they frequently stain their predatory attacks with murder, which the Arabs always, if possible, avoid ; they are less subject to the vicissitudes of season, as they live in a more temperate climate ; they have a less defensible country, and have been frequently conquered ; they make captures for the purpose of selling them, and this forms their chief article of commerce with *Bokhara*. In their enterprizes they are bold, bloody, desperate, and cruel ; from their enemy they do not expect, and give no quarter, unless to make a slave of their adversary, for the purpose of disposing of him at the best market ; they murder the old men and women, and only take away with them such as may bring a good price, and reimburse them for their trouble ; they are more sordid, less hospitable and generous, and inferior in magnanimity to the Arab ; they have larger forms, fuller faces, broader and more expansive foreheads, smaller eyes, and are more ugly and cunning than the Arab ; they shew a few hairs where we expect to see beard ; large mouths, strong teeth, and moderate sized lips. Their cap distinguishes them from the Persian ; from bottom to top it is large and circular, of the same diameter, and not conical as that of the *Kassilbash* cut ; it is placed on an enormous head, seated on a short but thick neck, and this pillar is supported by a pair of broad shoulders, which gives the outline of a large and expanded body and a full chest. Their food consists of bread, soup, and pillao, diversified with cheese, milk, and fruits.

They generally eat twice a day ; their breakfast is light, composed of bread with fruit or syrup. Their dinner is more substantial, meat under some form always forming the chief portion of it.

The Torkomans are divided into a great many tribes independent of each other, who have their respective chiefs and white beards, (*suffed resh.*)

The country of the Torkomans may be considered, generally speaking, bounded on the north by the river *Ammoo*, and on the south by the river *Tedjen*; but these rivers wind very much, and perhaps it may be better to state the southern boundary of the country to be the Parapamisan range, and from thence north it extends as far as the *Ammoo* river. On the east, it approaches the confines of *Balk* and the towns of *Aukooree*, *Seripool*, *Shiberghan*, on the borders of the Desert. On the west the limit is distinct, it is the *Caspian* sea.

Khiva is the capital of a portion of this extensive country; but the more distant Torkoman tribes hold themselves, generally speaking, separate and independent of its rulers. *Orgunge* is the general appellation of this state on the north of *Khorassan*, and among the Torkomans of *Shurraks*. In ancient times this wild, desert, and inhospitable country would appear to have been inhabited by the tribes or races denominated the *Dahæ*, the *Geses*, and *Massagetes*, and the *Mimunceni*.

They have always been noted for their turbulent character and predatory habits, and for rearing that superb horse, which enables them to perform the most extraordinary journeys. The Sultans of *Kharizm* are famous in history. Malek Shah is represented as a noble, high-minded, and liberal sovereign; and the bearing and courage of Jillaladeen, the last sovereign of the Seljukian race, excited the enthusiastic praises even of Genjhis Khan, while he viewed him swimming his horse across the rapid current of the Indus, still continuing to let fly his arrows at him whilst landing on the bank of the stream, admiring his intrepidity. A king of *Kharizm* is mentioned by the historian Arrian, but he makes his residence west of the Caspian, next the country of the Amazons: this locality seems in my opinion evidently a mistake of the copyist.

The brave resistance and the frequent revolts of this people are mentioned by Arrian and Quintus Curtius.

The people of these countries, together with the Sogdians and Scythians, appear to have been the first who checked Alexander's career. The above-quoted historians allow that his detachments were often surprised and defeated; his campaign in this country would seem to have been very harassing, the labour and sufferings of his soldiers

very great. It is scarcely to be expected from posthumous historians that in relating the transactions which occurred in a distant and nearly unknown country, where a different language prevailed, that the correctness of their geographical information should be such as to enable us to trace with minuteness the various cities and petty kingdoms which they have occasion to mention at the distance of two thousand years.* It is with difficulty we can even guess at the principal places reported by these historians of Alexander the Great to have been subdued by him.

One of the most interesting places to inquire the situation of, it appears to me to be the hill fort, which seems to have been occupied by the Sogdians. †This I imagine is no other than the *Killat Nadir*,‡ which very accurately corresponds with the description given of it by Arrian and Quintus Curtius. The names of nations and cities are very much confounded together, and this would appear to be the case with the Sogdians, Scythians, and Bactrians.‡ This rock may perhaps be thought likewise to answer to that of *Aornas*, since travellers have in vain inquired for it on the banks of the *Indus*; for Arrian says, that Alexander leaving *Herat (Aria)* went to the cities of *Aornas* and *Bactria*. *Killat Nadir* is situated on the borders of the Desert,

* With reference to the above, the following are submitted; some of them I have endeavoured to settle:—

Drapeaca? *Budukshan*.

Margiana. *Marghina*, the valley of the *Moorgab* river and the territory adjoining.

Nantaca? *Sogdiana*.

Drangæ? People inhabiting one of the mountain ranges of the *Parapamisan* spine. They are characterized by Quintus Curtius as “*Bellecosa Natione*.”

Dai. The *Cashgar* people inhabiting the Western hills as far as *Darwas*. These hills are called the “*Beeloor Tay*” I believe.

Mæotis. The lake *Aral*.

Paratucas?

Choriensis Petra? This is perhaps the present *Kellati Nadir* in *Khorassan*.

Nicæa sacro?

Thyrceas?

Ara Sacos? This may be conceived a place of worship of the *Sacæ*, who were a tribe of *Scythians*.

Jenippa? Is represented a vastly rich and populous country, which attracted, by its fruitfulness, settlers from all parts. This territory was situated on the borders of *Scythia* and would correspond to the present *Fergana*.

† Vide *B. Frazer*. It is situated north of *Meshid*, on the borders of the Desert.

‡ These are described as all horsemen who exercise the profession of plunderers even in the time of peace. The *Torkomans* of the present day are now more barbarous in their cruelties, if possible, in quiet times, than during war.

north of *Meshid*; it is perhaps as strong as any hill fort defended by natural works can possibly be. It has all the advantages of scarped rocks, which form an invincible barrier to an enemy, and must be nearly impregnable to a force destitute of shells. It has, moreover, extensive pasturages and cultivated fields, together with water in great abundance, which probably would never fail. Of all natural defences this is the strongest situated within or near the Torkoman Desert. In this stronghold an army of many thousands might remain secure against every attack of their enemies. It has three gates, one on the north, another on the east, and the last on the south; by these alone it can be entered.

The same mode of warfare, and the same manners of these wild tribes exactly tally with those given by Arrian and Quintus Curtius. *Omnes equites, etiam in pace latrociniis assueti, tam ferocia ingenia non bellum modo sed etiam veniæ desperantes asservant.** Their perfidy, villany, and barbarity, are as conspicuous now as in the days of Alexander. The Torkomans and the Usbecks are guided by the same principles and sentiments; are the same lawless, restless, and ungovernable race as the Sogdians, the Dahæ, the Massagetes, and the Scythians. The introduction of the religion of Mahomed has wrought little change in their morals, manners, customs, and socialities. Attached to no principles of moral rectitude themselves, they cannot conceive the existence of them in others. From their infancy accustomed to wander and to change their abodes; habituated to scenes of violence and bloodshed, in the perpetration of which no justifiable reason can be assigned, and restrained by no sense of order, reason, and humanity, they aspire to independence, and shun all subjection, whether of a moral or physical nature. Self-defence and preservation are their first consideration; self-aggrandisement and self-exaltation, the next; and in pursuit of this latter object, any and every means, even unto parricide, fratricide, infanticide, and regicide; but even the magnitude of such crimes are exceeded, frequently in the extermination of whole communities of people and extirpation of nations.

The *Oxus* is a river of considerable magnitude; it has a course of upwards of nine hundred miles from its source; its width and depth have not been exactly ascertained, it is however considered unford-

* Quintus Curtius, p. 231.

able, and has no bridges. The latest traveller, Mr. Moorcroft, found no difficulty in passing it; but unfortunately he omits to state in what manner his passage was effected. The main stream of the *Oxus* is formed of two branches. The right branch is called the *Ping Diria*, and the left branch, which comes from *Baduckshan*, is joined in its course from the *Hindoo Cosh* by several streams, and unites with the *Ping* river near *Hazerut Imam*.

Generally the *Ammoo* or *Oxus* is represented as a muddy, rapid, deep, dirty and sand-bearing river, and to travellers from Persia the largeness of the stream, and the quantity of water, is considered as somewhat wonderful, and they can only compare it with the *Tigris* or *Euphrates*. Mr. Moorcroft thinks it might be rendered navigable* from lake *Aral* to *Baduckshan*; in support of this supposition it is said, that Nadir Shah directed a thousand boats to be made and prepared for transporting his troops from *Baduckshan*, (or rather *Khundooz*,) to *Bokhara* and *Kharism*. According to Mr. Moorcroft, boats might be towed up by horses; that horses for draught might be easily obtained at a small expence; but before this could be put into execution, some knowledge of the banks on either side seems to be requisite. Alexander found it a difficult matter to cross: he could get no materials of which to construct a bridge, and was obliged to adopt (*then* as it is now in many parts) the practice used in the country, of making rafts by means of blown skins, the buoyancy of which had the desired effect; several rafts thus constructed were sufficient to enable his army to pass this river in the course of five or six days. The Torkomans and the Allemanees† are in the habit of swimming their horses across. The subsidiary branches are frequently crossed by individuals on cows, where the stream is very rapid. There are various contrivances for passing it in different parts of its course, to which the natives are habituated. The *Cabool* river is passed by

* The *Ammoo* has never been navigated; but as far as I can judge from personal observation, there exists not a single obstacle formidable to its navigation. In respect to barks of large burden especially, if conducted by a steam apparatus, and if objections not foreseen should apply to its agency, I can discover no more against tracking than apply to the Ganges, with a superior advantage of the command of as many horses as would possibly be required for that purpose, at a very low price.—*Mr. Moorcroft's MS. letter from Bokhara.*

† The name of the gangs that go out forays.

means of blown cow or buffalo skins, which are fastened to a slight raft of twigs. These rafts are called *jallahs*; they are very troublesome to manage, and dangerous, and accidents often happen. While the baggage and owners are thus ferried across, the cattle following each other swim to the opposite side. The *Oxus* is frequently frozen over; when this is the case, it can be crossed upon the ice. It abounds in fish, but we do not know that fishing is an occupation much followed by those who reside on its banks. Before it reaches the *Aral* it would seem to be divided into several streams, besides those canals which have been cut for the purpose of being conducted to remote spots of cultivation: the principal towns situated on these divided streams are *Oorgunge*, *Khiva*, *Toorbat*, *Suggur*, and *Sulughan*;* but these are probably little better than large encampments, except *Khiva* and *Oorgunge*, which are walled, and have ditches; but these defences are very miserable even in the opinion of the people of *Bokhara*. The southern bank of the river, and perhaps the other likewise, is covered for a considerable distance from the river with lofty reeds, which form a kind of forest, in which the Torkomans pitch their tents and feed their cattle; and I rather suspect that wild beasts also exist in these masses of reeds. Whence the ancients called this river the *Oxus*, as it bears no resemblance to the modern names, the *Ammoo* and the *Jehoon* has not yet been ascertained. Mr. Moorcroft has offered a supposition, that that it is derived from the Turkish word *aksoo*; this appears to me a happy etymology, as it characterizes the river, the word signifying a white river.

The banks of this stream are much frequented by the Torkomans; they annually cultivate small patches to supply themselves with grain on this side of the river; the best and most approved horses are bred, especially the *karabay*, reared by the Torkomans. It is one of the finest castes which is procurable. The government of the Torkoman resembles that of a father over his family; each head of a family exercises absolute authority over its members; these consist of his wives, his children, his slaves, and such dependents

* At *Oorgunge* my informant left the banks of the *Oxus*, situated eight coss from the main channel. From this he travelled to the N. N. W. passing the towns of *Toorbat*, *Suggur*, and *Sulughan* on to the city of *Khiva*, situated on the banks of a large river called the *Heelem*, nearly as large as the *Oxus*.—*Lieut. Macartney's Memoirs*, see *Appendix to Elphinstone's Cabool*, page 648.

who are too weak or too poor to have separate establishments, submit themselves to his authority, and live under his protection. These dependents are frequently relations, or somehow connected by near or more distant ties of blood. The orphans and relations of other chiefs, who have died without leaving any heir of sufficient years to provide for their families, are also united to them by a remembrance of the friendship which subsisted between the two chiefs before one of them died ; and so long as they are treated with consideration, they seldom think of separating from the chief who has shewn them kindness and assisted them in their difficulties. Several heads of families form an *owl*, who unite themselves, and in conjunction make their annual peregrinations for the sake of pasturing their flocks, or for the purpose of proceeding to a distant spot near some river or stream, to rear their crops to supply them with grain. These migrations generally commence about the beginning of spring, upon the breaking up of the winter, when the snow melts and the weather becomes warmer ; at this period of the year, pasturage for the cattle is plentiful every where, and water is abundant. This is a season in which the Torkoman delights, and his flocks and beasts sympathise with him. They yield him their young, and a vast quantity of milk ; they become fat and sleek, and travel with alacrity to new pastures. It is at this time that parties are made up to go on forays ; one of these gangs generally consists of from twenty to sixty horsemen, well mounted and armed with swords and spears, and not seldom with matchlocks and pistols. Before hand, the object of their expedition is settled, which is generally to way-lay a *kafila*, or body of travellers ; on some occasions very large bodies are united to make expeditions on particular points of attack—such as on the frontier of Persia. *Meshid* was an instance of this a short time before my arrival in 1828. The Torkomans on this occasion joined several bodies of *Hazerahs* and *Jumshidies*, to ensure the success of the expedition ; a quantity of booty was obtained, such as horses, mules, and slaves of different sexes. The attack having been made shortly after sunrise, when the cattle of the city had left it for the purpose of grazing, they found no opposition in driving them away, together with the captives.

The dress of the Torkomans in general consists of a pair of *pijam-mahs* or *shelmars*, which are fastened at the ancle ; over these they wear

a pair of high boots, which reach to the knee, commonly made of red Russian leather; for a shirt they wear next their skin a *perahan*, (tunic); over the *pijammahs* and *perahan*, they wear a *chogha* or cloak with sleeves, which is fastened by a slender *kummarbund* made of cloth or leather, to which is attached two knives in a case and a small purse. Above the under *chogha* they often put on a second, which is allowed to remain loose pending from the shoulders. On their head they have a black lamb-skin cap, with the wool of a jet colour and naturally curled.

The shape of this cap is not of a conical form as that of the Persians. Its diameter is the same at the top as at the part which immediately encircles the head.

They always wear a sword, (*shumsheer*,) which is either carried in the hand or fastened to the waist. They seldom wear a *peshkubz*. Their *choghas* are made of some blue cloth in the warm months, and of coarse woollen cloth in the cold season; the latter are either grey camel hair, coloured or black. The women are remarkable for wearing lofty turbans; they are fond of silks and splendid colours for their dresses. When young, their hair is allowed to grow long and unconfined, divided into plaits, to which are fastened behind small pieces of silver; some tribes wear their hair loose and exposed, others conceal it by turbans having loose locks hanging down. Their appearance has a certain rudeness, but not without something striking and interesting. The occupations of the men are predatory attacks; the chase; the breeding and the care, exercise, and instruction of their horses; tending their cattle; supervision of their slaves and their women, who are employed in making carpets, musnuds, (or felts,) loose furniture; overlooking their fields, and directing agricultural employments, and ploughing, sowing, and reaping; the setting up, taking down, and loading their tents. They are more accustomed to command than to obey. They exact implicit obedience from their wives, children, and dependents of all kinds. Their amusements are few. They like music, warlike anecdotes, breaking in their horses, exercising themselves in the use of the sword and the lance, and sometimes in using the matchlock. They delight in feasts and the pleasures of the table. They chase deer with an excellent breed of grey-hounds. Their women are employed in house-

hold duties, often have separate tents ; subject to them are female slaves, who act under their orders ; they prepare the ordinary food of the family, wash the linen, make up clothes for their husbands and themselves ; churn and make the coagulated milk and cheese ; bake the bread, and bring the water from the rivulet or fountain ; they assist in erecting the tents, in laying down the *nummud*, and cleaning the floor. They do not cover their faces with that scrupulosity that is practised in Persia ; they do not hide their faces except from newly-arrived strangers ; their manners are free and unconstrained ; their duties compel them to be much exposed to the climate. They are fond of singing and sometimes dance, particularly at marriages. I found them kind in supplying my wants ; both the men and the women are much given to pass their time in idleness and listlessness, and require much excitement to rouse them to action. In physical appearance the Torkomans are very muscular, large-bodied men ; they have very thick short necks, enormous heads with a broad front ; they have scanty beards which seldom exceed a few straggling hairs upon the chin. In their manners they are rude ; in their eating dirty and uncleanly ; their victuals are often imperfectly dressed by fire ; they are fond of animal food ; eat goat's flesh, and that of any animal which they can obtain.

These notes, (written in 1830,) were kindly placed at my disposal by Mr. Stirling, and are the result of that gentleman's personal observations during his travels in a part of Asia, little known in 1828. He has also obliged me with papers on Bokhara and Kothan, which will appear in their course.



Discovery of Coal in a new site. By W. DUNBAR, ESQ. Assistant Surgeon, 5th Irregular Cavalry.

Camp Burree,
22 miles from Hazareebaugh.

In marching about a week ago from *Dorunda* to *Hazareebaugh*, I halted one day at *Bullea*, a very considerable village about fourteen miles to the south of the latter station. Having heard reports that there was coal to be found in the vicinity, I requested the *Kotwal*, a very intelligent and obliging man, to show me where it was, we proceeded a mile up the banks of a considerable nullah, called the *Haharoo*. The soil appeared to be mostly alluvial, containing in some places a good deal of *kanker*. The greater part was cut into rice *khets*. On the banks of the *Suncheraie*, a small nullah running into the *Haharoo*, I first saw the coal in a bed about three feet in thickness, with a gentle dip or inclination to the west. It was splintery, very black, lying below a friable sandstone, and alluvium containing *kanker*. The bed seemed to be of great extent, and I have no doubt that any quantity of coal can be procured at this place. I brought some specimens with me to my tent, and found that those from near the surface did not burn well; in fact it was with some difficulty I could get them to ignite at all. The others burned very well indeed, without a great deal of smoke, and leaving an inconsiderable quantity of ashes. The coal bed seemed to have been never worked, and I had some trouble in clearing away the grass and bushes, to procure the specimens which I took with me. I have some of these still in my possession, and regret that I have no opportunity of forwarding them to you at present, for the opinion of better judges than myself.

At *Bullea* there are large and very extensive iron works, employing a great many persons, and yet strange to say, though most of the inhabitants are aware of the existence of this extensive coal bed, they never use it for their furnaces; but are at great expense in transporting wood and charcoal from the forest, several miles distant. I endeavored to impress upon some of the workmen how advantageous it would be, and what a saving would accrue to them, were they to use this coal; but by

their answers, they evinced their utter indifference to the subject, and their determination to adhere to the customs of their fathers. The coal bed is not above a mile distant from the works.

The village of *Bullea* is very prettily situated, and the view from it in every direction very picturesque. Towards the N. W. and at a distance of three or four miles, is a semicircular range of hills called the *Mahoodée Pahar*, very much resembling, though scarcely equalling in altitude the Salisbury Crags, at Edinburgh; that is to say, there is a steep *talus* (formed in a great measure to all appearance from debris, which have fallen from above) of 200 or 300 feet elevation, and then you come on a steep precipice, which it appears impossible to scale. The *Haharoo Nuddee* winds in beautiful meanderings along the base of this high range. Hilly ranges of considerable altitude surround the plain on which *Bullea* is situated, and I regretted much that I had no time to examine their formation, or even to visit the *Mahoodée Pahar*, which was not very far distant from my camp. In a commercial point of view, little or no importance can be attached to the discovery of coal at *Bullea*, at least in the present day. It is near no navigable river; no public works of any importance are in its vicinity, excepting the iron works above alluded to, and it will require more than persuasion I am afraid, to induce the natives to abandon the use of wood and charcoal, for a cheaper and more useful material. The roads passing over steep and rocky ghauts, are by no means in a good state, though it is to be expected, owing to the exertions of Major Ousely, Governor General's Agent, that they will soon be much improved.

[This paper was communicated immediately on its receipt to Government, but having been subsequently mislaid, has not appeared at an early date as it should have done.]



Succinct Review of the Observations of the Tides in the Indian Archipelago, made during the year 1839, by order of his Excellency the Governor General, of his Netherlandish Majesty's possessions, 20th October, 1838. No. 3.

[This interesting report was transmitted to the Asiatic Society by the Society of Arts at Batavia. It has been translated for the Journal from the original Dutch, by my friend Dr. Roer, the translator of Lassen's Points of History.]



The tides have been observed at Pulo Chinco on the West coast of Sumatra to the southward of Padang, from the 10th February 1839 to the first of January 1840, being ten months and three quarters, by the naval lieutenants of the second class, G. J. Fabricius and J. de Hoon.

At Muntok on Bornea, from the 15th January 1839 to the first of January 1840, being eleven months and a half, by the naval lieutenant of the second class, P. C. Reuchenius.

On the Island Onrust near Batavia, from the 1st January 1839 to the 1st January 1840, being twelve months, by the naval lieutenant of the first class, Director of Onrust, J. Sigtorel.

At Fagol, on the north coast of Java, from the 1st January 1839 to the 1st January 1840, being twelve months, by the naval lieutenant of the second class, F. J. E. Van Goreum.

At Klampsis, on the north coast of Madura, from the 10th February 1839 to the 1st January 1840, being eleven months and three quarters, by the naval lieutenants of the second class, J. A. K. Van Hasfelt and J. Van Gool.

At Filatjap, on the north coast of Java, from the 1st of January 1839 to the 1st January 1840, being twelve months, by the naval lieutenant of the second class, J. A. G. Rictoeld.

To these have been added some less complete observations on Amboyna, from the 23rd March 1839 to the 1st January 1840, being nine months and a quarter, by the master, J. Kecutebol, and the naval lieutenants of the second class, J. A. Rieffer and J. A. W. High.

At Taparo, from the commencement of May 1839 to the close of December 1839, by the assistant resident of Tapora, Winkelman.

Also on the Coriman Islands, from the 18th July 1838 to April 1839, by deputy of the civil service, Michalosske.

These two latter observations were forwarded by the favour of the Batavian Society of Arts and Sciences, which had already previously made (at the request of Prof. Whewell, Trinity College, Cambridge) some communications with regard to the tides in this Archipelago, to the Asiatic Society in Calcutta ; besides these, there were some observations made at Macassar in the year 1840, by the master in the navy, E. Lagto, after they had been finished at the other stations.

These observations furnish the following results concerning the respective stations :—

At Pulo Chinco off Fjinks, West coast of Sumatra. The course of the flood tide and the rise of the water on the coast was observed to run from N. E. to S. W., closely following the direction of the coast.

The ebb tide ran in the opposite direction, and though both tides were very trifling, not exceeding a quarter of a mile, yet the force of the ebb generally exceeded that of the flood, though neither were sensibly influenced by the wind.

The tides were, however, very regular. The mean duration was about six hours and a quarter, so that as usual, there were two tides in a day.

At new and full moon the high water was generally between 5h. 30m. and 6h. 30m. viz.

At new moon.	A. M. at 6h. 24m.
	P. M. at 6 30
At full moon.	A. M. at 5 28
	P. M. at 5 35

average time about 6—00, and the time of flood tide during the other days, followed the common rule, dependant upon the moon's passing the meridian, according to which, though not always with the same regularity the tide came in every day generally about three quarters of an hour later, or rather in the course of a fortnight the variation amounted to twelve hours. If then six hours be supposed as mean number, it was almost always flood tide when the moon was in the horizon.

From the time of high water to the time when it again turns to ebb, as is here noticed, we may be allowed to fix 5h. 30m. as the mean number.

The mean rise and fall was about ebb,	...	...	0	78
The greatest ditto ditto,	...	...	1	49
The smallest ditto ditto,	...	...	0	6

The difference in the elevation of the succeeding tides is remarkable, viz. a greater rise and a smaller one were perceived to take place alternately, and in the same manner also the ebb tides.* This alternation of flow and ebb which is very regular may hereafter be shown to be in connection with the moon's decrease, though perhaps more so at this place than at the other stations of the Archipelago.

The greatest difference between high and low water, as well as the highest rise, occurred in October and November, and generally in the months when the West monsoon prevails.

At Filitjap, South coast of Java.

On the south coast of Java the tides were most regular in all respects, consequently the observations made upon them are best adapted to furnish a general rule.

The course of the flood tide was to the West into the outlet, and followed the direction of its shore. The ebb tide ran in an opposite course. In the westerly passage or creek of Segara Anakon, the tides had a course quite the reverse; here the streams met consequently the rise and fall took place without stream. In general the stream appears to run, at least in the East monsoon, along the coast to the East, at the rate of half a mile in four hours. In the straits of Filitjap in the West monsoon, the ebb and flood tides ran at the rate of two and three miles, and in the East monsoon at five and five and a half miles. The tides evidently follow here, as well as at Pulo Chinco, the common rule. The mean duration of rise and fall was about six hours and a half, and this took place with much regularity, two tides in one day; but also smaller rises and falls between the usual ones have been sometimes noticed, amounting to 0-20 ebb. The duration of still water is here very regular for ten or fifteen minutes after high and low water. The ebbs and floods are about equal in force and duration. At new and full moon the mean time of the flood tide was between eight and nine hours, viz.

* NOTE.—A nautical friend has pointed out that night tides are generally the highest, thus giving an alternation.

At new moon at. 9h. 18m. P. M.

and at 8 53 A. M.

At full moon at 8 45 P. M.

and at 8 19 A. M.

Average of the time 8 48

and therefore as the time of flood tide is noticed to the moment when the water again commences to decrease, we may fix here, as mean number, 8h. 30m., considering that here also the period of the flood tide during the fortnight passed the space of 12h.

At this station was observed the same remarkable fact as at Pulo Chinco, that at new moon it was high water an hour later than at full moon.

The mean rise and fall of the water was 1. 25 ebb.

the greatest 2. 42

the smallest 0. 10.

The greatest difference in the rise and fall of the tide took place some days after the new and full moon, not however exceeding 2.63 ebb. The highest water mark was observed in the East monsoon.

The difference of the rise and fall of the succeeding tides is here very notable, and appears more than elsewhere to be in connection with the decrease of the moon. The morning and evening tides are different, especially at the decrease of the moon, while they were about equal at the time of the moon's passing the Equator.

At Amboyna.

Although the streams in the bay are not strong, and sometimes only run from two miles to two and a half, and the turns of the tide very irregularly take place, we may state that the stream of the flood tide in the East monsoon runs into the bay along the northern coast to the E. and runs out along the southern coast to the S. W. The opposite course takes place in the West monsoon, while in the middle of the bay little or no stream is observed.

The duration of the rise and fall of the water is here very regular, about six hours and a quarter, so that the flood occurs about twice a day, and in a fortnight looses about twelve hours.

At new moon the mean time of high water was about

A. M. 0h. 34m.

P. M. 0 46.

At full moon A. M. 0 06.

P. M. 0 38.

Average of time 0. 30. or 33m.

The month of December makes an exception to this, and might encourage the supposition of another mean number during the West monsoon, unless the observations made in that month exhibited a want of accuracy, on account of which they are not to be relied on.

At new moon here also, as well as at Filitjap and Pulo Chinco, the flood tide appears to come in always later than at full moon; the mean rise and fall was about 1. 14. ebb.

The greatest ditto ditto 2. 50. ebb.

The smallest rise observed at several places was scarcely perceptible. A small rise was alternately taking place with a great one, and the same occurred with the fall. The difference of the succeeding rises and falls is here likewise deserving notice. The greatest difference between high and low water took place in April and July.

The highest water mark was in April, November, and December. These remarks are made on observations taken during the period from April to December, and especially during the East monsoon.

At Klampusis, on the Northern coast of Madura.

It appears from the observations that were made, that there was no flood or ebb stream perceptible during the East monsoon, and in the month of May the stream had always during the day a Westerly direction, with the velocity from two miles to two and a half; while at night little or no stream was observed; it sometimes likewise ran to the East. The month of July forming the only exception to this, when in the night also the stream ran to the West, with a force of about two to three miles. In this monsoon the water is generally falling during the day and the stream then strongest, while during the night the water is generally rising; the stream however has little force.

These facts suggest the inference, that if ebb and flood tide here actually exist, the ebb tide has a Westerly direction, while the flood runs

to the East; this latter, however, is almost annihilated by Easterly winds. In the West monsoons, the stream runs to the East with little force, and the water rises during the day; the flood stream should accordingly run in this season to the East; but then at night scarcely any stream is perceived, and the ebb tide which then runs, was observed to be annihilated by the Westerly winds.

*East Monsoon.**West Monsoon.*

	←— Wind E.	—→ Wind W.	
During the day fallg.	←— Stream during the day or ebb.	During day —→	Stream during the day flood
Night rising	←— Stream during the night or flood.	Night falling —→	Stream during the night ebb.

The mean duration of the rise and fall of the water is during the whole year eleven and half to twelve and half, so that here ebb and flood occur only once in the same day; nevertheless it appears that here often little rises and falls, or those called short tides, have obtained alternately with them. It is worth noticing, that during a certain period the flood tide always took place before noon, and during the remainder of the year in the evening; namely, in May, June, and July the time of flood tide was daily in the morning about nine o'clock, and one o'clock in the afternoon, without regular yet constant retardation; this period from time to time suddenly shifting to an interval of six hours. In the first half of August, this period occurred between half-past seven and half-past eleven A. M. In the latter part of the same month, between half-past five and eleven A. M. In September between one o'clock and half-past ten A. M. In October between midnight and six o'clock A. M. In the latter days of November between nine o'clock A. M. and midnight. In February between three, half-past three, and half-past eleven o'clock P. M.; and so on, until in May this period again occurred before noon.

Thus it can be proved that in the E. monsoon, the flood tide took place always before noon, and therefore the fall of the water and also the ebb was during the day; and in the West monsoon after noon, so that the fall of the water and also the ebb were in the night, while the opposite was observed with regard to high water and the flood tide, as the mean interval from the period of the one flood tide

to that of the next was about twelve or thirteen. The succeeding tides, or the duration of that of the rise and fall generally decreased in an inverted arithmetical progression from between nine to fifteen hours; the difference between the rise and the succeeding fall of the water was most remarkable at new and full moon. There has been a single instance, in which the duration of the fall did not exceed an hour, while again a rising of three-quarters of an hour has been observed.

The sum of the two succeeding tides, or the duration of the rise of the water and the succeeding fall, always amounted to somewhat more than twenty-four hours..

This was not the case as regards the height of the tide and of the succeeding fall, which was almost constantly equal.

Here also, as elsewhere, it is notable, that a great rise and fall occurs alternately with a small one, and the difference in the rise and fall decreases till no longer perceptible, when it again increases, which phenomenon must (at least at the first glance) be accounted for as the effect of a powerful cause; as for instance, the decrease of the moon as has been already done.

The common rules are here also not sufficient to calculate the time of high water. It also deserves notice, that at new and full moon the flood tide generally, excepting some instances in October and April, came in between eight and ten o'clock, viz. the morning, when the afore-said periods in which, according to the season of the year, the flood tide must take place, corresponded with the morning, that is in the East monsoon, and in the evening, when the converse took place, that is in the West monsoon.

The flood of eight or ten o'clock, whether in the morning or in the evening, took place in almost all periods, as above mentioned.

The period of the flood tide at new and full moon cannot, however, be averaged or used to calculate the mean time of high water for another day.

The mean rise and fall of the water was,... 1·12 ebb.

The greatest, 2·13

The smallest, 0·11

The greatest difference between high and low water occurred in May, June, and December, after new and full moon, though this by no means was always the case.

The highest water-mark was likewise observed about this period.

At Pagoh, on the north coast of Java.

It appears that here also, as at Klampus, no streams of ebb and flood, strictly speaking, are to be found, the tides generally being very irregular, and the streams, which seem to be dependent on the wind, at most amounting to a quarter or half a mile.

The duration of the rise and fall has a singular course. In January it is sometimes six hours, so that there accordingly flood and ebb tides occur generally twice in a day; and only one rise and fall of much longer duration than ordinarily is perceived at new and full moon. In the succeeding months, these longer tides repeatedly occur after new and full moon, so that at this period, for several succeeding days, the flood tide comes in but once a day, and thus also the ebb, and the duration of the rise and fall of the water is respectively twelve hours. In May, about new and full moon, they continue for eight days, and likewise the whole month of June the duration of the ebb and flood tide is respectively twelve hours; so that there is but one flood and ebb tide during the day.

Then again in July, at new and full moon, there are tides of about six hours' duration, so that two tides again occur in a day.

In August and September, the number of days when short tides are perceived, is increasing. In October, the duration of all tides is about six hours, and in November and December, at new and full moon, they again come in some long rises and falls.

At the period of the change from these common or short tides (of about six hours) to the long ones (of about twelve,) a great rise and fall generally is alternate with a small one, and it is a remarkable fact, that these smaller rises and falls gradually decrease until they entirely disappear, and only one rise and fall takes place in the twenty-four hours.

The reverse was the case on the change from long tides to the common or shorter ones.

The same also appears to happen as regards the time of rise and fall, though in a less striking degree.

The time of flood and ebb tide is here likewise very uncertain. It may, however, be stated, that at new and full moon, the ebb tide comes in about three o'clock in the morning, while it is more regular with regard to

the flood tide, and it is therefore impossible to calculate with exactness, the other days re-appearance of ebb and flood tide at Fagol.

The mean rise and fall during the year was, ... 0·50 ebb.

The greatest, 0·97

The smallest, 0·04

The greatest difference between high and low water was observed in the West monsoon, and scarcely ever at new or full moon ; so that there accordingly existed no real spring tide : it never exceeded the fall by 1·03 ebb.

The highest water-mark, on the other hand, was in the East monsoon, especially in the months of May and June.

The difference in the rise and fall of the succeeding tides is here, as well as at the other stations, deserving notice ; and though the equality of the succeeding rise and falls evidently depends upon certain rules, yet it is not to be traced, at the first glance at least, to the decrease of the moon.

The monsoons, and likewise the stand of the sun's solstice probably, exercise a more than common influence on these tides at Onrust near Batavia. No stream of ebb and flood, properly speaking, was observed any more than at Fagol or Klampsis, the stream which runs cannot be subjected to any certain rule, nor does the rise and fall of the water proceed with regularity. The stream in all directions is much influenced by the wind, and is very trifling, seldom exceeding one mile to one mile and a half.

According to the observations that have been made, the duration of the rise and fall of the water in December, January, and February, was about twelve hours ; so that there is in one day, only once high water and once low ; sometimes, however, the water is longer flowing than ebbing.

In March for some succeeding days, smaller tides were observed between them, which being of very unequal duration ordinarily, were alternating in a short rise, succeeding a long one and vice versa. The recurrence of these small tides which first appeared twice or thrice in the month, may perhaps be brought into connexion with the age of the moon ; the number of days they continued decreased about July and August, though sometimes a short tide of one or two hours occurred ; with these exceptions, there was high and low water only once in twenty-four hours.

In the latter days of August, the number of days when the short tide comes in, it increases so that almost the whole month, as well as in September, two tides took place in the same days, though of a very irregular duration; then the number of days when the short tides were observed again decreased, occurring only twice or thrice in the month; till in December long tides almost always return, so that in this month there is only one ebb tide each day.

However, supposing in January and February the short tides have been overlooked, which is not impossible, as the character of these was not known at the commencement of the observations, or we should be able to assign a reason, that in July and December long tides, and in September and February short tides take place, as well as between these months, the number of days when short tides obtain, decreases and increases; something similar to this has been observed at Fagol; but the period of long and short tides does not correspond.

There is no peculiarity concerning the difference of the succeeding tides; but we must not omit to notice, that there, as well as at Klampsis, in December, January, and February, flood tide always comes in before noon, and this period is successively retarded; the flood tide being observed during May in the night; during June in the evening; during July and August in the afternoon; in September before and after noon; in October and November in those days where only one tide in one day took place before noon. It is evident from these facts, that during the East monsoon the flood-tide comes in the afternoon, and in the evening; while during the West monsoon it was before noon, and in the morning just the reverse of what has been observed at Klampsis.

The period of the flood tide at new and full moon, however irregular it may be in the interval between them, is always about ten o'clock, (or between 9h. 30m. and 10h. 45m.) P. M. from March to December, that is in the East monsoon; and at A. M. from September to March in the West monsoon, a singular correspondence with the observations at Klampsis. It is evident that on account of the regularity of the tides, this period cannot be used as a mean number, to calculate the period of the flood tide for other days.

The mean rise and fall was,	...	...	0· 67 ebb.
The greatest,	...	...	1· 32
The smallest,	...	...	0· 02

The greatest difference between high and low water took place in the West monsoon, and then especially at new and full moon, in the other parts of the year. The position of the moon was not observed having any reference to the water-mark. The highest water-mark was also in the W. monsoon, and especially in December.

At Muntok in the Straits of Borneo.

At this place, a decided stream of ebb and flood took place, and the observations seem therefore most fit to establish on them a general rule for the tides within the Archipelago, and the short or middle tides. The flood stream at Muntok runs six or eight hours in a day to the S. E. with a velocity of quarter, half, and sometimes of one and a half mile, while the ebb stream runs sixteen or eighteen hours every day, at the rate of one or two miles to W. by N. and W. N. W. The turn of the streams was not regular, nor to be brought into connexion with the rise and fall of the tide. In August, an ebb was even observed lasting more than thirty-eight hours, while the water in the mean time rises twice.

After the monsoons, the common duration of the rise generally is ten hours, and that of the fall 14-30; afterwards at the first and last quarters of the moon, ebbs and floods, or the so-called short tides take place in one day, which last about six hours, or rather the mean duration of two rises is about 11-30, and that of two falls 12-35.

The short tides ordinarily appear at a certain suspension of the fall or rise in the ebb and flood tide, called by the natives *passing ketjil*. Should these tides amount to two ebbs and two floods in a day, they are called by the natives, "*passing onok*;" while ebb and flood, which run for a longer time, and precede the common tides of ebb and flood of twenty-four hours duration, bear the name of "*passing ma*."

On the contrary, during the change of the monsoons, that is during April, May, October, and November, these middle tides run at new and full moon; and here also as at Onrust, flood tide occurs during the West monsoon, in the afternoon and in the evening, and at new and full moon at 8h. 30m.

During these months, when at new and full moon short tides were running, the high water generally came in about 6h. 50m. in the morning, and at about 7h. 10m. in the evening. However, these numbers cannot exhibit a mean number, nor give a direction to calculate the high water of the other days, although the time of the flood tide, however irregular, seems daily to come in later, being retarded twelve hours in a fortnight, while this time on the appearance of the short tides has a most irregular course.

The natives foretell sometimes very exactly the return of the small and the short tides.

The greatest rise and fall was,	...	...	4· 26	ebb.
The smallest,	..	...	0· 07	
The mean,	...	...	2· 17	

The greatest difference between high and low water was at full moon in December, in June, and May, and in general when the monsoons had passed; while the difference during the months, while the monsoons changed, was less perceptible.

The greatest rises and falls often took place at new and full moon, though by no means always.

The highest water-mark was also observed when the monsoons were in their full force. Besides it deserves notice, that during the period when flood and ebb tide came in only once a day, that is during the common long tides, the rises and falls following each other successively increase and decrease; while when two tides or middle tides occur in a day, the succeeding rises are alternately great and small, and thus also the falls, while the difference in the quantum of two succeeding rises, probably depends on the decrease of the moon.

At Corimon, Java.

An ebb and flood tide is here even less perceptible than at other stations. It appears, however, from the observations that were made, that here, as at Klampsis on the North coast of Madura, the stream runs especially with the rising water to the East, and with the falling water to the West; in the East monsoon in the night, in the West monsoon in the day time.

The tides are very irregular; there being only once in a day flood and ebb tide, and sometimes of the duration from nine to fifteen hours.

The period of the flood tide has here, as at Klampsis and Onrust, a general though irregular retardation, viz. in the East monsoon, as at Klampsis, the high water comes in before noon and in the morning; in September early in the morning; in October, November, and December, in the night; during the West monsoon in the night and in the evening; in April in the afternoon; while this period is most irregular during the turning months.

The mean rise and fall was, 1·25 ebb.

The greatest, 2·03

The highest water mark is in April, and generally the 21st and 22nd of the month.

At Tapara.

No ebb and flood stream properly speaking, and the whole course of the tides very irregular. With the rising water, a stream was generally observed having an easterly direction; high water only once in the same day. Here also the period of the flood tide appears to undergo a general, though indefinite annual retardation, viz. the flood tides during the month of May and June take place after noon and at noon; the ebb-tide in the morning and about midnight.

In July, August, and September, they take place successively earlier, so that the high water comes in October about half-past five o'clock in the morning; in December about half-past one in the morning; and during the W. monsoon in the night and in the evening; and consecutively the flood-tides again occur in the afternoon. The period of ebb and flood tides at new and full moon is very irregular.

The mean rise and fall is, 1·31 ebb.

The greatest, 2·00

The highest water-mark was observed in October.

At Macassar.

According to some observations of a later date transmitted to us, viz. during the three first months of 1840, the tides are very irregular; having a close correspondence with the tides on the Javanese sea.

The flood-tide, though with little force, runs to the N. E. and N.N.E. the ebb-tide to the S. W. and S. S. W. either stream much dependent on the wind.

During the full strength of the monsoons, there appears long tides to prevail, being only one flood and one ebb tide in twenty-four hours, and as at Muntok and Onrust, during the change of the monsoons periodically, returning short tides took place twice in a day; and during this period they were all short tides of about six hours. At new and full moon, the flood-tide comes in at about 6h. 20m. There is no daily retardation of the flood-tide. It appears, as at Klampsis, on the north coast of Madura, that during the W. monsoon the high water takes place in the afternoon, and most likely the converse during the E. monsoon.

A mean number cannot be obtained here.

The highest rise was during the 3 first months of 1840, 1. 60 ebb.

The mean, 0. 75

If we then compare the course of the tides at the different stations, there is evidently observed a sensible difference of the tides without the Archipelago, viz. of those on the West coast of Sumatra and on the South coast of Java and of Amboyna, from those within the Javanese sea. Here we are able to fix a certain mean number, by means of which the time of high water is to be calculated, totally different from the course of the tides within the Javanese sea.

The former it appears follow the well known rules of the tides; there is twice in the day ebb and twice flood tide, and two tides take place in the space of somewhat more than twenty-four hours in the whole, depending on the moon's passing the meridian.

Here we are able to fix a certain mean number, by means of which the time of high water is to be calculated beforehand, totally different from the course of the tides within the Javanese sea, which cannot be traced to the common rules; they rather are governed by the locality, the position of the sun, and the monsoons dependent on it.

We may however state, that in the Javanese sea high water is only once a day, and that besides these, long tides, or rather rises and falls, which of more or less duration last together somewhat more than twenty-four hours. Small or short tides prevail, whose very regular return depends on several causes, especially on the monsoons

and the sun's solstice. They may perhaps be subjected to a certain rule; because the natives of this Archipelago are able often to foretell with great exactness the return of the small tides.

Although (notwithstanding the irregular return of the hour of high water) at new and full moon at the same place, the tides generally return at the same hour; yet these cannot be fixed a mean number for the different stations upon this sea.

In general annual (although irregular) retardation of the daily period of the high water, which appears also to depend on the sun's solstice like the short or middle tides, is a singular character of the Javanese sea, or perhaps of all seas situated within an Archipelago.

Besides, it must be noticed, that the streams are still more irregular than the rise and fall of the water, and much depends on the prevailing winds.

Order.

E. LUCAS,

*Rear Admiral, Commander of H. M. Navy
in East India, and Inspector of the Navy.*

*By order of the Rear Admiral, Commander of His
Majesty's Navy in East India, and Inspector of the Navy,*

W. DE CONSTANT REBECQUE,

Adjutant and Naval Lieutenant.

Station.	EBB.	Velocity.	Remarks.
Pulo	S.W. C.W. h.	Mile $\frac{1}{4}$ Great.	The tides regularly lose 12 hours in a fortnight, the flood along the coast runs to N.W., the ebb to S E.
Filatja	East.	$2\frac{1}{2}$ to $5\frac{1}{2}$.	The tides regularly lose 12 hours in a fortnight ; the stream along the coast runs to the East during the East monsoon.
Fort Ve Am	E. mon- N.E mon- S.W.	Little to $2\frac{1}{2}$.	The tides regularly lose 12 hours in a fortnight ; ebb and flood run in an opposite direction along the North coast of the Bay.
Muntol	16h. or N.W.	2	During the East monsoon it is always high water at 2 P. M. or in the evening ; during the W. monsoon A. M. or in the morning.
Onrust	nd flood tide stream.		During the East monsoon it is always high water at P. M. or in the evening ; during the West monsoon at A. M. or in the morning.
Fagal.			
Klamps	on the rise, and Westward		During the East monsoon it is flood tide always in the morning, and in the West monsoon in the evening.
Tapara	ly, but it is very irregular.		During the E. monsoon the flood tide comes in the morning, and in the W. monsoon in the evening.
Crimon	y, and on the fall Westerly.		During the East monsoon the flood tide comes in the evening ; during the West monsoon in the morning.

If the average of the greatest rise and fall of every month be taken, it is somewhat less. If

Ormiral of the Navy in East India, and Inspector of the Navy,

W. DE CONSTANT REBECQUE,

Rece

Adjutant and Naval Lieutenant.

Journal kept while Travelling in Seistan. By the late Capt. EDWARD CONOLLY.

I left Herat on the 11th of August 1839 in progress to Seistan. All the papers and credentials with which I had been furnished by H. M. Shah Shooja and Mr. Macnaghten having been stolen from me near Herat, Major Todd wrote out a new list of instructions for my guidance, and procured letters of introduction to the chiefs, through whose country I should pass, from H. M. Shah Kamraun and his Vuzeer Yar Mahomed Khan. He also gave me letters from himself to the several chiefs.

The vuzeer appointed two persons of influence and respectability to accompany me into Seistan, or as far as I might judge convenient; they were to receive no fixed salary; but I promised to reward them according to their services and utility.

Both were accompanied by a few horsemen.

I had also as an escort, an Ishaukzye, named Sultan Khan, with six horsemen, who had been made over to me at Candahar by H. M. Shah Shooja.

The vuzeer sent me before I started a handsome horse, and what was more valuable, one of the five mules which were captured from the Persians during the siege. This animal was worth at even Herat 360 Rs. We reached Subzawar on the evening of the 15th; when about a mile from the town, we were met by a messenger from the governor (Syed Mahomed, a son of the vuzeer Yar Mahomed Khan,) who conducted us to a garden house, which had been prepared for our reception. On reaching this, we found seated, waiting for us, a Persian gentleman, a sort of mentor to the young lord; the Sheeghaussee, and several other well dressed persons, who repeated "You are welcome, you are very welcome," a hundred times; a *zeafut* followed of forty sheep, and attah, barley and ghee sufficient for my whole camp for six days. Till late at night, message after message came from the sirdar to inquire if I was tired, if my brains were clear.

16th.—This morning I was hardly up, before the sirdar visited me, with a long train of followers; he sat a fatiguingly long time, talking nothings. He talks so fast, that his servants even confess that they only understand half he says, and as he mingles a large proportion of *Pushtoo* with his Persian, I found some difficulty in following him: he has a pleasing appearance and manner.

I rode out in the evening; the town is a poor collection of huts, but in the fort are some twenty houses of Hindoos, who are perhaps the most contented of Shah Kamraun's subjects; not that they are better treated than the rest, but that the oppression to which they are subjected seems less, and tolerable in comparison with what they dread from *Sheah* intolerance, should the Persians gain the ascendant.

On my return home I sent my head Mirza, Mahomed Juher, to the newly-discovered Prince, with respectful messages, and an apology for not calling, on the plea of my being a traveller, having nothing fit to present, &c. The fact was, my *tosha khaneh* was not large, and it was necessary to husband my resources.

The prince at Subzawar is the youngest son of Shah Kamraun, and is named Zemaun. One of these princes is attached to every government under the rule of Shah Kamraun, to assist in the administration of justice, since no one but a Puddozy could execute a criminal without fear of retaliation. When the real governor wishes to punish an offender, he sends him to the prince, who, dressed all in black, in the robes of punishment, *poshaki gauzub*, himself superintends the execution; besides the more usual punishment of cutting off the ears and lips, slitting the nose, &c. tortures of several kinds have been common.

Syud Mahomed paid me another visit in the afternoon, as I had announced my intention of pursuing my journey to-morrow. He shewed me a letter from his father, begging that I would permit one Hubeeboollah Khan to accompany me to Seistan, that he might through my influence purchase grain, which at present he said, from Shah Pusund Khan's being unfriendly to him, he could not do. He also requested, that I would

The Governor.

Description of the Town.

Shahzadeh Zemaun.

Condition of the princes.

Torture.

Letter from Yar Mahomed Khan.

make over any grain, I could buy on the public account to the same. To the first proposition I made no objection. Hubeeboollah I knew to be a man of character and respectability; he is an Ishaukzye, and son of the Mir Akbar of Shah Zemaun; and as he was well acquainted with Seistan, where he had lived for more than a year as the agent of the Herat government, I thought he might prove useful.

On taking leave of the governor I presented him with a pistol of

small value, and a shawl, apologizing for the poor-
 Present to Syud Mahomed Khan. ness of the gift by repeating, what I had been repeating, since I arrived but without much effect, that

I was travelling as a mere private individual, and uninvested with political authority. Syud Mahomed expressed himself quite satisfied with the offering, and sent me two sorry horses in return; he also pressed a few more horsemen on me, as the road between Subzawar and Turrah was not accounted safe. As I was mounting my horse, a person slipped a letter into my hand and slunk away; it was from the prince, begging me to mediate with Major Todd, that his allow-

ance might be increased, and wishing me a prosperous journey. Our road lay on the banks of the
 Letter from the Prince. river Adrascund, which shewed traces of having been

once richly cultivated; but at present they are covered with grass and

weeds, on which large numbers of sheep, camels,
 Leave Subzawar. horses, and cows were feeding. We made a detour to

visit the Killah Duchter, celebrated in the traditions of this part of the country; but were not repaid for our trouble. The Killah Duchter is a small ruined fort on the left bank of the Adrascund,

where that river turns the hills, and on the extreme
 Killah Duchter. edge of these hills is built, just opposite the other

fort a wall and parapet, now in ruins, with a high tower in tolerable preservation, and which is seen for miles. This last is the Killah Pisur, and the son and daughter used to nurse each other with mutual sieges. While we were sitting on the tower of the Killah Pisur, which commands a fine view of the plain below, we perceived a horseman trotting towards us from the town. It appeared that a boy, the

slave of some person about the sirdar, had ran away
 Runaway Slave. and had taken service with one of my followers. The

moment the horseman approached, the poor boy went without saying a

word towards him, and jumped up behind him; the man not even halting, turned his horse, and trotted back again to Subzawar with his reclaimed property; for there was no time to interfere if even I had the will to do so.

From Subzawar to Imanet, the villages are inhabited by mixed tribes of Duranees; but between Imarut and Jaigee, the population is entirely composed of Goorazyee Moorzye. We met on the road a pleasing sight,—some few Kheils returning from the south to re-settle in their old lands in Subzawar. The Dlebhikzye Kheil, with whom I was so near being obliged to fight at Ahinuk, as related in a former report, had also just returned to their ancient habitations, laded it was said with spoils, of which a part was the Company's camels. I reported this last circumstance to Major Todd, not thinking the present a prudent time for me to stir in the matter.

At Jaya two gentlemen, who were travelling towards Laush on their private affairs, requested leave to accompany my party. One was the son of the old Moorzye lord, so well described by Mr. Elphinstone, Ahmed Khan; the other was a relation, Dost Mahomed Populzye, a person well known in the modern history of Herat; they both shared in the general ruin which has fallen on all men of rank under the rule of Yar Mahomed Khan, whose policy it has always been to allow the clans subject to Herat, to be without a head; so that there should be no one of influence in the country but himself and his immediate adherents. Though I could not but fear that the two nobles came to beg, it was difficult to refuse giving them the protection they asked for, particularly as a few miles from Jaya we had a few hours before met two different parties who had been robbed by the lawless inhabitants of the hills. Their followers did not consist of more than eight horsemen, so we bid them all welcome, and assigned them their station in the camp, they agreeing to share in the fatigue of keeping watch at night, in which every person with me, of whatever class he might be, took his part. Our watches were not indeed kept with the silent decorum of a European camp, though perhaps in a manner equally effectual. Several parties of twos and threes sat round fires in different quarters, and kept themselves awake by singing songs,

Joined by two Duranee gentlemen.

Night watch.

verses of which were taken up by one party from the other; and by calling out to each other at the top of their voices, *hoshear*, "be watchful," every five minutes.

You leave the valley of Jaya by a narrow pass, which runs at right angles to it, and enter a barren plain called Baboor; as you approach the Bobehi Barran hills, you find the whole country covered with a beautiful grass, so that you may suppose it a meadow in England. But this grass, which is called *keertah*, has some property noxious to cattle, and is therefore useless. After this, you come upon the valley of the Purrah road, which was, and should be, one mass of cultivation; the banks of the river presented a lively appearance of green gardens, of villages, and fields.

We now crossed through miles of ruined walls, and did not meet one inhabitant till we were quite close to the town. When its desolate appearance. the Candahar sirdars retired, and the present governor, Futteh Khan, was sent to occupy the fort, a scene of desolation presented itself to him, which I cannot describe better than in his own words:—

"I went to the top of the castle, from whence there is an uninterrupted view for miles; through all the wide space below me, I could not perceive one human being or the smoke of a single fire." The few people he had with him actually lived on the grapes, which were the only things the Candaharees had not destroyed. They dried and made sugar from them, and sent them to Baudan and other places around, getting grain in exchange. We halted on the evening of the 21st on the banks of the river, about two miles from the town; the next morning Futteh

Mahomed Khan, who the evening before had been

The Governor.

amusing himself with the *munzud bauzee* at a village

some eight miles off, but who the moment he heard of my arrival left his betrothed to come and meet me, rode up with a few followers, and escorted me to a wretched mud house in the fort, which I afterwards learnt was his own residence, which he had vacated for me. After inducting me into my quarters he took his leave, and shortly afterwards sent me whole maunds of delicious grapes, a mule load of melons, and provision for four days for my party. People came in to know whether this was sufficient, that more would be sent, &c. A respectable person

Reception.

was left to attend on my wants, who every half hour brought in a cup of tea and a *kullion*. In the even-

ing the governor called again, accompanied by the heads of all the Kheils around, who apologized for not having come out to meet me, as they had not expected me so soon. I disclaimed all title to such honors, but this they evidently considered as mere words of course. The room was so small that it was with difficulty all my guests could squeeze in. I had heard reports of Khyrmun Meerza having encamped outside Subzawar, and of his having sent to Shah Pussund Khan to desire him to get ready 60,000 *khurwars* of grain, as he was coming with an army. "I have written," said Futteh Khan to Shah Pussund to say, "that if he does any thing of the kind he shall repent of it." This flourish was amusing enough to me, who knew the relative situation of the parties. There was much talk of the Beloochee *chuppaoing*, Beloochee plundering. and Juma Khan, the brother of the Ex-Candahar sirdar, was reported to have been stripped.

The many stories I heard of the boldness and strength of these plundering bands, and the assertion of several people, who pretended to have been well informed on the subject, that there was no grain procurable at Jorodine, determined me to leave eighty camels, (which I had

brought from Herat with me for Major Todd to load with grain for the use of the mission,) at Furrâh. Determined to leave camels brought for grain at Furrâh.

This measure, too, might disarm any jealousy Shah Pussund Khan might have perceived by my bringing these camels, which he might suppose were sent by his rival the vuzeer, and it would serve to counteract the prevailing notion of my being laden with gold, which caused all the beggars to collect around me from far and near. I was much annoyed with people rushing into my room with a large tray, perhaps containing one melon, or getting introduced on the plea of business, and then presenting a pair of gloves, or some such

trifle, and begging for *shushkut*, which literally means Expensive presents. honor, and really money. As all the heads of Kheils

had sent me presents of fruits, we had more grapes and melons than we could have consumed for several days. I asked Futteh Khan how to get rid of the nuisance, and if it was the "custom" for travellers to be thus taxed; he said it was all imposition, and mentioned as an example, that when the king of Persia rides out an order is given that no one should make an offering, I of course profited by the lesson. Beggars of this kind are sometimes very impertinent and exacting, and

will return the contra-donation, unless they think it sufficiently large. A villager brought a sheep to Shah Pussund Khan's father : ' Give the man a *choghu*,' said the chief to his Nazir. The Nazir took off his own cloak and gave it. It was old and torn. The villager looked at it, turned it over, and putting it down at the Khan's feet, said, " Here, take your old *choghu*, and give me back my sheep."

23rd.—I called on the prince Saudut-ool-Moolk, Futtah Khan having Prince Saudut-ool Moolk. hinted to me that a present was not required. He was seated in a small room in the citadel, and made me sit down beside him, without any attempt at formality. He was coarsely dressed, and had just the air of a *Buniah*. He is fat, short, and jolly looking, and talked much with a loud voice, smiling all the while, and this good humoured personage has lately seated himself on the road between Furrah and Girishk, and in company with his brother of Ghore amuses himself with plundering passengers. From the prince I went to the governor, whose house was more wretched than Governor's house. my own. We walked out together to visit the pits, where they were making saltpetre, with which the whole plain of Furrah is encrusted.

The process of extracting it is simple ; a platform of wood and branches is thrown across a pit, and covered with Saltetre. earth scraped from the surface : this is wetted, and the saltpetre drips through into a reservoir below, from which it is ladled out into bowls, when it is boiled, and left to crystallize. The crystals are as clear and shining as amber. Any quantity may be made here ; but at present they only collect enough for their own consumption, from some foolish idea of its being dangerous to sell it to their neighbours, who are, or may be, enemies, chiefly from the general languor of commerce in this part of the country. When Shumsooddeen Khan was governor of Furrah, he is said to have exported it with much advantage to his revenues, Seistan for example affording a ready market. Nothing but common salt having as yet been found there, a little is still sent annually to that country from the pits. We ascended to the top of the citadel, and a more melancholy prospect it would be difficult to imagine ; of the fort I have sent a plan to Major View from the ci- Todd. The walls are of considerable thickness, tadel. except in the S. W. face ; the inside of the fort contains only some

twenty houses with domed roofs built of mud, with the exception of perhaps three rather larger places, such as the one I lived in.

In the centre is a pond of stagnant water, which the inhabitants have not energy enough to drain off, though it is the cause of much unhealthiness, and numbers of people fall victims to fever and ague when the plain is inhabited. The rest of the fort is occupied by the mounds raised for salt-pits; some in use, others deserted. Round two or three sides of the fort were the ruins of the town, now containing no inhabitants, nearly all of them having fled to Laush. There were no Hindoos, no shops. You could not have purchased a rupee's worth of grain.

24th.—The sirdar proposed a *pic nic* to a celebrated Hindoo place of pilgrimage, called the Bebehi (a corruption perhaps of Bebe) Baran, *of the raining lady*, in the hills N. of the town, or and about twelve miles off. A spring from the heights above is discharged upon a large table rock, projecting from the side of the hill, through which the water filtrates, dropping like rain for a space of about fifty feet. The effect is very beautiful. On a small level space just above the dripping rock, a Hindoo *fakcer* had stationed himself, and supported by numerous pilgrims, who flocked to him, had lived there fourteen years. His visitors built him a very comfortable house of two rooms, and outside was a clear place for bathing, a space set apart for his cooking, and even a little garden. The Bebehi Baran is situated at the end of a gorge, which on the Persians raising the siege of Herat, the Furrabees fortified against the Candaharees, who had possession of their fort. The soldiers annoyed the hermit, or perhaps the earthen vessels for grain which are remarked round his chamber were not filled so regularly in those troubled times—he left his retreat.

I afterwards met him in Seistan; he was a young man still, not forty.

He came to me, as a brother Hindoo, to beg the gift of five rupees, to take him back again to his old house, where he says he intends to pass the remainder of his days. I gave him what he wanted, and I afterwards learnt that he has once more taken possession of his house on the Bebehi Baran.

25th.—The two nobles who had accompanied me from Jaujer, sent to say, that if I would only feed them, they would follow me into Seistan; there were reasons for not

Unhealthiness of Furrab.
Bebehi Baran.
Dismiss my two guests.

acceding to this ; one of which I may mention, that Ahmed Khan's son had some demand to make on Shah Pussund Khan, and he thought that his being in my suite, would ensure its being granted. I therefore declined the offer, on the plea of wishing to be as private as possible, and not to incommode my generous hosts with a larger camp than was necessary. I had been sending them a few sheep and grain and fruit out of the superfluity which Futteh Khan and others had forced upon me, and through Mahomed Taher, had intimated to them, that I had only money sufficient for the expences of the road. I now sent a parting present of food for two or three days, and consigned them, in the Afghan fashion, to God.

Mahomed Seddie Khan, one of the persons sent with me by Yar

Mahomed Khan, had been since our arrival at his home, a village not far from Furrah. I learnt to-day

Mahomed Seddie Khan dismissed.

by chance, that this man had a blood feud with the chief of Toojk, a place we have to pass on our road to Laush. I immediately dispatched a letter to Mahomed Seddie, telling him that he must take his leave of me here, and requesting him to send me some servant, or to come himself, for his *khillut*. The *Cossid* brought back a reply, that Mahomed Seddie was coming in person to answer my letter. This evening we heard from a traveller of the flight of Dost Mahomed, and the occupation of Caubul.

The governor called to wish me good-bye, as I was to start for Laush in the morning. I gave him some gay pieces of cloth, which I heard would be acceptable to him, for the lady he was courting; he sent me a horse worth about fifty rupees. Before he took leave, he ordered his attendants out of the room, and begged me to intercede with Major Todd in his favour, that he may not be turned out of his government. "I have no heart now," he said, "to make any improvements; for the moment I have made the appointment worth holding, that villian Dyn Mahomed Khan, who has the ear of the vuzeer, will be sent to supercede me." Futteh Mahomed Khan is a relation of vuzeer Yar Mahomed Khan, and is known to us as the envoy who was sent from Herat to Teheran. He is a thin, yellow complexioned, insignificant

Character of Futteh Khan.

looking personage, with a very timid manner, indicative of his character, as it was the *boory* he defended, upon which the Persian assault was made at the siege of Herat. He has since enjoyed, and makes the most of a

reputation for bravery ; but it is said that on the day of the storm he was actually running away, when a young Furrâhi seized him by the arm, and unconsciously making use of a famous expression, said, " The enemy are not there."

Futteh Khan is, however, a very pleasant companion ; any timidity of manner soon wears off, and he has all the polish and address of a Persian. His kindness and polite attentions to myself, (not to mention the profuse hospitality, for which however the vuzeer of Herat, and not Futteh Khan, is to be thanked,) I must confess somewhat blinded me as to his real character, which I only discovered at Joroaine, when I was thrown among the exiled Furrâhees. They perhaps exaggerated his demerits ; but it would appear that on his assuming the government of Furrâh, he persecuted the few inhabitants that still remained in the district, on the plea of their having joined the enemy, and thus contributed as much as the Candaharees themselves, to the desolation of the province.

26th.—We were hardly outside the walls of Furrâh, when a letter was brought from Shah Pussund Khan to say, that on account of the danger of the road, he had sent out some twenty or thirty horse and foot to meet me at his frontier, and that he had prepared a room for me in his house. We were catching fish with *coculus indicus* in the river at Barunduk, where as the name implies, there is a water-fall, and a deep pool famous for its fish, when we were disturbed by a mounted party. This was the escort sent by Shah Pussund Khan, headed, by a person called the *Shaughoussee*, (because he had formerly served in that capacity to some prince at Turrah, Thenazis, and other respectable people.) The *Shaughoussee* apologized for the absence of the Khan's grandson and for the paucity of the horsemen ; the young Khan and all the horse they could muster, having gone only a few days before to take possession of Killah Rab. As we approached Toojk, we could have counted its very inhabitants, for I suppose there was hardly a male who had not come out to see the first real *Feringee* who had ever visited them. Vi-kovitch they consider, what he called himself, a Cossack. We marched into the town in a ludicrous sort of procession ; numerous old women kept throwing water at me, as a symbol of welcome ; and to keep off the evil eye, beggars burnt in-

Letter from Futteh
Khan.

Toojk.

cense under my horse's belly ; little boys with long sticks in their hands were continually crying, " Remember the poor scholars," *talib ul-ilm* ; and a testy *fakeer* walked just before me, and made my horse jump every minute by calling out, *ya huk*. The custom of throwing water I saw in no other place but in the Laush territories ; it resembles the presenting the "*rullus*" of Rajpootanna. They have another mode of welcome peculiar to Laush. When a new governor arrives, they tie a cow to a platform, which is carried on men's shoulders a few miles on the road ; while the chief is coming a man, stands on the platform with a knife in his hand, calling out " Shall I kill, shall I kill ? " If the governor says, " Kill," they prophecy he will be a tyrant. If he spares the animal, they escort him with great joy and acclamation to his house. The governor of Toojk, Khan Ishaukzye, named Jaun Mahomed Khan, met him before we reached the town ; we sat on a carpet under a tree while the tents were pitching ; all the house tops and branches of the trees around us being crowded with people eagerly gazing at us, and bursting into laughter every now and then, at the strange dress of myself and the sergeant. Jaun Mahomed, a singularly good-humoured-looking and talking person, began the conversation by saying, that he had been a rebel for twelve years, and he evidently prided himself no little upon it. But said he, " Yar Mahomed and I are now fast friends, and he has just sent me two horses."

He was very anxious to know, how we could govern Mussulmans. " For instance," he said, " suppose you had taken Candahar for yourselves, instead of Shah Shooja." After disclaiming the possibility of such an event as our taking Candahar for ourselves, I endeavoured to explain, that in India we governed Mussulmans according to their own laws, with some limitations ; and mentioned as an example the prohibition of

blood feuds, &c. " That may be all very good," he said,

Blood feuds.

" but I should like to see any law that would prevent me killing a man who had killed one of mine." Hoping to get a little quiet, we retired to our tents ; but the curiosity of the people could not be repressed ; a large crowd squatted themselves around the doors, trying to peer through the chick to see what we were doing, and every now and then some beggar would poke his head in, and whine out, *Ai berae khoda !* " Ah for God's sake." Night only relieved us from this persecution ; I became rather alarmed after what Jaun Mahomed had

said regarding blood feuds, that Mahomed Siddie, who had not yet come in or sent his man, might, trusting to my protection join me here, and some unpleasant fray might ensue, in which my name would be mixed up. Sultan Khan reassured me, "that Mahomed Siddie was much too knowing to trust himself within the reach of his enemy; that the quarrel was nearly extinct, and propositions for settling it by a marriage had been sent in; and that as it had lasted 30 years, about an equal number of lives on each side had cooled it; they would be unwilling to renew the affair by fresh blood; but of course," he added "if they meet, they will attack each other." The two Douranee chiefs who had joined me at Jarja were halting for a few days at Toojk, having come on from Furrah a day or two before me. They were in great distress; two of their horses having been stolen, and one having died. I thought this

a good opportunity of doing a civil thing at a cheap
 Give away a horse. rate, I therefore sent them one of the horses which

Syud Mahomed Khan had given me. It was a worthless beast, not worth its feed; but I heard that the gift was much appreciated. We staid one night at Toojk, which has about one hundred and twenty houses. The inhabitants were of the same tribe (Tylshih) as their master,

Hyderzye Ishaukzyes. There were also a few of other
 Toojk. tribes, emigrants, and half a dozen chiefs, and altogether

there was an air of comfort about the place remarkable after the general misery of the country we had been passing through. It has lately been made over to Shah Pussund. Jaun Mahomed Khan, who had been a most liberal host, insisted on riding out some miles with me. He was accompanied by his son, a young man of about 20, and some five or six other people, all his relations; and all well mounted on horses which Yar Mahomed had given the chief on his coming in. We took a parting pipe. I threw a *choga* over his shoulders, and we shook hands.

That we might get into Laush in good time the next morning, we stepped on the banks of the Furrah river, where there was water in small pools at Kurawan Keze, about eight miles from the fort. We reached our ground at midnight, and after cooking a rude dinner in the Afghan manner, on the ramrods of matchlocks, lay down to sleep. When I awoke in the morning, a man was sitting shivering by my bed. To my question, "Who are you?" he could only answer,

"They have killed him; they have killed him." "Killed whom?" I said, starting up in alarm. "Mahomed Siddie." As soon as we were able to re-assure the trembling wretch sufficiently to allow of his giving a connected account of what had occurred, we learned that Mahomed Siddie, who was desirous of coming on with me, had determined to rejoin us by making a detour to avoid Toojk; and striking into the road a few miles below, he had just reached the road, when he was met face to face by Jaun Mahomed's party returning home; He had but two more with him, his nephew and a servant, the man who had come to me. Jaun Mahomed's brother, the moment he saw his enemy jumped off his horse and fired his match-lock, but missed. Jaun Mahomed called out to let the other party alone; but just at this moment Mahomed Siddie's nephew fired, on which Jaun Mahomed's son galloping up, killed him before he could remount, with one blow of his sword. The other two fled, and Jaun Mahomed and the rest coming up, all dug their swords into the dead body. The last circumstance we learnt afterwards; and such is always the custom in similar cases. Somewhat relieved at finding that Mahomed Siddie was not himself killed, (the servant's fright alone having caused him to mention his name,) we now consulted how to secure his servant's safety; for he was clinging to me for protection, and declaring that he should be murdered by the Ishaukzyes. The Shaughoussee swore that no harm should happen to him while he remained with me, and then the man consented to accompany us as far as Laush, when he would get a present and *khillut* for his master. As we were riding along; I asked the Shaughoussee, "Is the feud now quenched; do you want any more lives?" He answered by holding out two fingers. Some sixteen lives have been lost in this quarrel.

We were met at about 200 yards from the fort gate by the Khan, himself mounted, and his attendants on foot, for all the horsemen were either with me or at Killah Rab; we dismounted and joined hands, and as every one with me had to place his hands between those of the Khan, I thought we should never have mounted again. The room selected for me was nearly at the top of the castle, and the same in which Vikovitch had lived. It was small, not very clean, and but poorly furnished; but to compensate these disadvantages, it commanded a view of the plain below, of which we were never tired. The fort

of Jorroaine is about two miles from the rich valley, dotted with villages, and the river running close under the walls. From the exaggerated accounts of the Heratees, who always speak of Laush as an impregnable place, I had expected to find it at least a strong fort. It is in fact nothing but a castle, and could soon be reduced by shells, or even stormed, for it has one weak side.

The appearance of the fort could only be understood by a drawing, and unfortunately my views of this and of some other places have been, by mistake, left at Candahar. It will be sufficient to mention here, that as the name "Laush" implies, the fort is built on the edge of a high "cliff," immediately under which flows the Furrah river; on the East face it has the perpendicular cliff, over which are erected buildings to a height of perhaps 400 feet; a great part of these will, I suspect, fall down the precipice in another year, for the water in the spring cuts below, weakening of course the upper bank, and already several ominous cracks may be observed. I pointed this out to the Khan, and recommended his turning the stream by a bank from immediate contact with the base of his castle; but he will doubtless forget the advice he promised to follow, till half his family are overwhelmed by the fall of his house. The N. and W. faces are detached from the high plain beyond them by a deep ravine; but the S. side offers but little obstruction to a regular army. Laush is an ancient place, though I do not remember its name mentioned in history. The cliff on which it stands has many caves cut in it, and there are said to be subterranean passages, to which perhaps the women of the garrison could retire in case of its being attempted to shell the fort; but most of these passages have neither fallen in, nor have been stopped up. In case it should be necessary to take the place, a mine led under only a small part of the E. cliff, would I suspect on exploding, bring down half the castle. Laush and its territories belonged to the Vuzeer Shah Wallee; it was destroyed by Timoor Shah, and remained desolate till taken possession of and rebuilt by Shah Pussund Khan, on whom it was bestowed by Mahmood, when he returned from Teheran. The life of Shah Pussund Khan would occupy a volume. A sketch of it will not be in appropriate here, as his actions and character have frequently been misrepresented. There are three principal families among the Ishaukzyes,

which will be best understood by a diagram. This diagram will also serve, to explain much of the ensuing narative :—

Ishaukzyes have four principal divisions.

HAWAZYES.	TEROZYES.	MUNDURZYES.	IDZYES.
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Shudoonzyes.

Shah Pussund Khan;
Ahmed Shah's General, his family in poverty at Candahar.

Zadinzyes.

Muddut Khan; Meer Afzul Khan; Dila Sar Hadgi; Dost Mahomed Khan; Wull Mahomed, present head.

Ahmedzyes.

Kohun Dil Khan;
Selah Mahomed Khan, (vulgarly called Sauloo) side of Shah Pussund derived from Shah Mahomed Goolzar Khan, governor of Feraria, at Candahar.

Russool Khan, with King of Persia; Ahmed Khan, governor of Killah Rab; his mother, a daughter of Shah Pussund Kn. brother of Khan Jehan Khan of Seistan.

Abdool Hu-beeb, blind at Laush.

Abdool Ma-jeet, service of Shah Shooja at Candahar.

Mahomed Siddick Khan, a child; Mahomed Hussein, a child; a mother; a daughter of Khan Jehan Khan.

Ahmed Shah, when after the fashion of the Ghilzees he portioned out the offices of his household among the Douranees, and made them hereditary in particular families, assigned four appointments to the Ishaukzyes : Mir Aspaha, master of the horse ; Purawal, leader of the van ; Darogha of camels ; and Mir Shikar, chief huntsman. The grandfather of Shah Pussund Khan, (Rumal Khan,) was Mir Aspaha of Timoor Shah, as was Ruheem Dil Khan of Shah Mahomed. Saleh Khan followed Mahmood in his wanderings in Tartary ; but alarmed at the murder of his clansman, Meer Alum, went over to Shah Shooja, as related in Conolly's Travels, vol. ii. p. 362.

Mahmood understanding, doubtless, the true motive for his desertion, wrote him a letter to the following effect:—"I have made you; if you will not remain with me, do not at least join my enemies." Saleh Khan on receipt of this, determined to stand neuter, and went off to his fort at Laush.

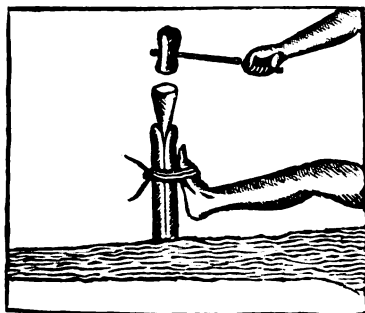
Hadgi Feroze wishing to get Jorrajine and its dependencies for himself, sent Dost Mahomed Khan Populzye with an army to take it, and Shah Pussund, who had no stores laid in to enable him to stand a siege gave up Jorrajine, on consideration of being allowed to keep Laush. Dost Mahomed soon after, desirous of returning to Herat, insisted on Saleh Khan's leaving the neighbourhood, and that Khan, who had no power to refuse, went off to Kamraun, who was now governor of Candahar. The prince received him kindly, and kept him six months; afterwards quarrelling with his manager, (Gool Mahomed Khan Populzye,) he gave Shah Pussund his place. In this situation he continued for nine or ten years, and Laush and Jorrajine had again come into his possession, the garrison having ejected the governor left at the latter by Dost Mahomed, and given the place to the Ishaukzyes.

At the seizure of Shah Pussund Khan at Herat (Conolly, vol. ii. p. 408) he led a most eventful life, till the death of Mustapha Khan (Ibid, 413;) during that period he wandered from place to place perpetually and with much success plotting against Kamraun; making friends at different times with the rulers of Khaff, Toorbuk, Meshed, &c. He even visited Teheran, and was well received by the king of Persia. He more than once gained and lost Jorrajine, Turrah, Anardurch, and Killah Rab; but he failed to get possession of Laush.

He was now Kamraun's minister at Herat; the prince gave him Furrah and Jorrajine; but still with jealous care guarded Laush for himself only. At the request, often repeated, of Saleh Khan, he consented to sign a paper, purporting that that fort was the Khan's, who pretended that his reason for demanding such a document, was to save his honour in the eyes of his tribe.

A year had elapsed, Kamraun had forgotten the paper, when all of a sudden a messenger of Shah Pussund's arrived at Laush with a letter to the governor from the Khan, enclosing the document sealed and attested by the Shahzadah, and requesting the delivery of the fort, according to the tenor of the enclosure to a person of his appointing. The

governor was completely taken in ; the fort was given up, and Shah Pussund immediately fled to it ; turned *yaghee*, (rebel,) and has since successfully resisted every effort to reduce him seven or eight times ; and twice in person Kamraun has blockaded Jorraine and Laush. These repeated attacks have impoverished the rich valley ; but a few years of quiet under Shah Pussund's rule, which is very popular, will render the district more fertile and populous than it has been since the days of Nowsherwan. The lord of Hak, (for such is the proper name of the district,) is now about sixty years old ; in his person he retains none of that beauty for which he was remarkable in his younger days, and to which, if we may believe scandal, he was indebted for the title to the



king's favourite. He is very lame, which was originally occasioned by a bullet wound in the thigh in the battle of Khoo-skhi-Nukhood, near Candahar ; but principally from his having been subjected to the torture of the *thanah* when he was seized at Herat. In this torture, the victim's foot is fastened to a

thick wooden pin (driven into the ground) by cords drawn as tight as possible over the ankle, a wedge is then hammered into the pin, causing by the tightening of the string extreme suffering. It is said that the ankle is broken, and that blood, (but this seems false) starts out at the toes.

The address of Shah Pussund is by no means prepossessing, and there is a considerable awkwardness and formality in his manner, which however wears off, particularly if he has become excited in argument, when he speaks with great earnestness, using much gesticulation. Though he has been so much among Persians, and speaks Persian fluently, he appeared always to avoid talking, if possible, anything but Pushtoo. This seems a trifle ; but it is one of those trifles which has contributed not a little to his popularity among his countrymen. Another now palpable cause of this popularity is, the simplicity and plainness, which is the principal feature in his character. He despises show.

When minister at Candahar, though lame from his wound, he would never get into a *tukhtrewan*, because he said, he was no better than any other Douranee. His dress is always plain ; sometimes coarse ; he has never since reaching to manhood dined but in public, and the poorest persons share his dinner, which is usually composed of only mutton broth and bread, but plenty of it. My Meerzas felt much flattered the first night of our arrival by an invitation to dine with the Khan ; but on seeing the fare spread for them, they could not taste it, and always afterwards avoided as much as possible the honour.

This simplicity of life, as I have before observed ; these unaffected manners ; but above all his hospitality, have gained Shah Pussund Khan, the heart of the Douranees. A Douranee in my presence asked another what made Futteh Khan, the vuzeer, so popular ? “ He was a robber, a liar, a tyrant, and addicted to abominable vices.” “ One thing more,” replied the other, “ his bread, his hospitality.”

The hospitality of Shah Pussund is the theme of praise in all the countries bordering on Herat, and what renders it the more remarkable is, that he is not esteemed rich ; nor can he be so, as Kamraun extorted a good deal of money from him and his country ; for the constant warfare it has been exposed to, can have yielded but little. During my stay in his house—which circumstances protracted to fifteen days—I could not, though I more than once urged him, with all the arguments in my power, induce him to abandon the expensive kindness of feeding the whole of my establishment. His very mode of bestowing his bounty enhances the value of it. There is no waste, no profusion, every thing is appropriate, and ample. To me a dinner was always served up from the *anduroon*, and every day different sweetmeats were sent in with the compliments of his son. The Hindus had their grain, ghee, &c. the Mussulmans sheep,—so much apportioned to each man ; even the straw for the horses, for it was a scarce article, and was served out by weight. Besides my party, there were several others, who were all entertained in the same style. There were the servants of Alladad Khan, who accompanied Vikovitch to Teheran and died there, who were conducting the *taboat* to Candahar. They had been robbed in Seistan, and had fled to Laush for assistance and redress. There was the family of Jooma Khan, brother of the

Candahar sirdar, who had been robbed while returning from Beerjund; and whose family Shah Pussund sheltered, having sent out a party to bring them in as a friend. The son of Ahmed Khan had also arrived, and an *elchee* from Meshed, and several others of less consequence, not to speak of some lady guests, who were dependent, was evidently an every day matter. It did not create the least bustle or confusion. My host used always to visit me morning and evening, sitting for about an hour, always in one position, (which like Baber's uncles* he never changes,) that called the *dayanu*. He was generally accompanied by a crowd and by a pet child, whose mother—a daughter of Khan Jehan Khan—had died a few days before I arrived. He had been much attached to her, and frequently spoke to me of his loss. I took an early opportunity of offering him, on the part of the envoy and minister, a diamond ring, and a shawl, and of presenting my credentials and letters from Major Todd. Shah Kamraun's introduction I thought might as well be in my desk, nor did I through my journey find it politic to present any of those I had received from him or from Yar Mahomed Khan. Saleh Khan at once acceded to my request of procuring grain for Major Todd, and in a few days the camels were brought from Furrah; and with some more hired ones were sent to Herat, loaded with wheat and barley, which was however procured with much difficulty, and had to be scraped together by seers at a time. In a (acknowledged) letter to Major Todd, I have detailed all the conversations I held with the Khan on political matters, and the earnestness with which he expressed his good will-towards the Shah of Cabul, and the English government, and explained the necessity which had forced him to have recourse to the alliance of Persia. I need here, therefore, say no more on this subject, and will again continue my interrupted Journal.

August 30th.—The Khan this morning brought in a small bag, and told me he had a favour to ask of me. He had been over-looking the property left by his wife above mentioned, that he might lock up any thing of value for the after-use of her son, and had
 Snake stone. discovered, he said, a bag of precious stones. “She got them, poor thing, probably after some *chuppao*: what the greater

* See Baber's Memoirs, p. 20.

number are I do not know ;" added he, "but one of them is I am convinced a *puzur*, preserver from stings, or snake-stone ; now just tell me what they are all worth ?" The bag on being opened, was found to contain nothing but a parcel of agates, cut into different shapes, and what evidently once formed the stock of some itinerant seal-cutter.

He had been so long opening the strings of the bag, that my curiosity had been warmed, and on perceiving the contents, I perhaps rather too bluntly exclaimed, that they were not worth a rupee. Saleh Khan seemed much disappointed, and only half-convinced ; he carefully put the stones into the bag again one by one, only reserving one red one, the *puzur* ; "And this ?" said, he, holding it out ("for God's sake" whispered Mahomed Tuher, "say it is something curious ;") but I thought it wisest to speak truth, and told him, that snake-stones were now found to be mere fallacies. He replied, "That is all nonsense ; that the *puzur* cures snake bites is a well attested fact. It was found in the belly of a deer, and why should it be there if it was of no use ? Besides you can easily see if this is a *puzur* or not, for if it is the real stone it will sweat on being put into the sun." A plate was actually sent for, and the agate placed in it, and exposed to the sun, and the Khan, though soon doubtful of this identical stone being the *puzur*, believes as firmly as ever in the real one. He now put into my hands a small box, which I found contained the watch which had been sent to him by Mr. Macnaghten three months before. "I would not open this," he said, "though they were very curious up there" (pointing to the *Zenana*, which is on the highest part of the castle,) "to see what was in it, for fear of spoiling it, and as I knew you were coming". He was much pleased when he had learned to open and wind it up ; the last of which he would, all I could say, do every half hour, and then send the watch to me, saying it would not wind. The ignorance displayed on this occasion by Shah Pussund Khan at first surprized me. I had expected from his intercourse with Persians, that he would have been better informed on European matters than his countrymen ; but the little of our science he has picked up in his travels, half-learnt and half-understood, has only served to confuse, and not to improve.

He thought (and it is a popular belief in Khorassan,) that all the Russian gold money was found ready coined every Christmas-day at the bottom of a well, which is previously filled with baser metal. Some-

body having tried to make him understand the extraction of sugar from beet root, he has impressed his whole neighbourhood with the notion, that Russian sugar, which they always see in loaves, grows in its primeval shape like a carrot. One of my most acceptable visitors was the blind son of my host. He is not yet thirty, and has been blind some 12 or 13 years; one eye has been entirely destroyed by the lancet of some Candahar practitioners; from the other he can see a little, and it might I think be cured by couching. I wish indeed to bring him with me to Caubul, that some of our oculists might look at his eyes; but having thought of trying to cross the Ghore mountains, I feared his helplessness in such a region, and only pressed him therefore to go at once to Herat and take the advice of the doctors there. Like the most educated blind persons, he has a mild placid address, and a very retentive memory, and it was from him that I learnt the greater part of his father's history. He asked me to dinner, and the Khan, for once in his life, consented to be of the party. The host on this occasion would not sit down with us, but stood at the door, superintending the relays of dishes till we had all finished.

I mentioned to Shah Pussund my desire of paying my respects to the governor of Jorraine; he evidently was unwilling that I should go there, but did not well know how to put me off. He sent one or two persons privately to persuade me that the visit would look odd; that Goolzar Khan was a mere cypher, and of course there was a ready answer to such arguments. I have a letter to present, and must go. He was, I believe, fearful lest old Goolzar Khan, who is not on very good terms with his nephew, and who had all the garrulity of age, might speak to his disadvantage, or perhaps let out things he might not wish me to know. At last, however, I set out. I was met as usual by a large crowd, and by an *istikbal* of three or four of the old man's sons,

Jorraine.

and Goolzar Khan himself came down from the fort on foot to receive me, though he cannot walk without difficulty. He evidently was delighted to see me his guest; he began to fear that I should pass him by, and his honour was concerned in the matter. Somebody had also told him, that I would not make myself understood in Persian; but when he found that I enjoyed his stories of the old times, he told them with all the pleasure one receives from finding a new auditor to an old tale. He is a fine old gentle-

man, of about eighty, and his whole life has been a series of adventures. He was very funny and amusing: "There, bring the *Sahib* a kullion. I suppose you smoke well. In my younger days not one of us smoked, but those — Persians have infected us; very well, and how is my friend the vuzeer? May his house be blasted! Look at my feet, this is his doing." He held up his feet, of which all the toes had grown as it were into one. A very few years ago, Yar Mahomed Khan wrote to him addressing him as his father, as the whole hope of the Douranees, and sending him a Koran in pledge of his sincerity, and pressed him to come to Herat, where he should be treated with every distinction. The old Khan trusted him and went; he was seized and brought before Jorraine, where they beat the soles of his feet to a jelly with sticks, to make him write to his son to give up the fort.

I spent a very agreeable day, and returned in the afternoon to Laush. Jorraine is still a virgin fort, and could always, if well defended, keep out any Asiatic force. The walls, which may be about 200 yards in length, are very thick and high. The balls of the Heratees made hardly any impression on them. It has but one gateway, which is on the north face, and would be difficult to be forced. The base of the fort is elevated above the surrounding plain. Its weakest point is, that it is surrounded on all sides by buildings, so that it can be securely approached. The few measurements we were able to get by stealth, are mentioned in the Military Memoir. There is a dry ditch, but it is now half filled up. It was, when we were there, the most populous place I had seen since Candahar. All the Furrahees were settled round the walls in huts or black tents; their flocks were feeding in the plain; their cows had been sent off to the Humoon. There was hardly a yard of ground within the fort not covered with buildings. I do not exactly understand the relative situation of the governor of this fort and of Shah Pussund Khan. The latter is the real head; but he seems to interfere little with the affairs of the fort, and when Goolzar Khan dies, it is an understood thing that his son is to succeed to the lands immediately belonging to the fort, which yields only some 80 *khurwars*. Shah Pussund has three parts and Goolzar two.

Memoir on the Coal found at Kotah, &c. with a Note on the Anthracite of Duntimnapilly, (H. H. the Nizam's Dominions.)—By W. WALKER, ESQ. 24th April, 1841.

NOTE.—In submitting the accompanying Memoir, I have purposely abstained from giving any opinion either as to the quality of the Coal, the practicability of mining, or the likelihood of a large supply of the mineral being procurable at Kotah.

Destitute at this remote place of all means of forming any estimate on a subject on which I must in a certain degree be one-sided and prejudiced, I leave to others the decision of the intrinsic worth of the article, and both the other points. I refer to the practical engineer and miner, who alone, after survey, &c. are capable of forming a correct judgment.

Yet, I may be permitted to give it as my opinion, that the river merely touches the edge of the Coal basin, and to this I am led by the fact of no carboniferous limestone appearing on the other side, or on any of the shallows to the right: the dip too of the stratum to the N. E. would appear to be favorable to boring on the left bank. The alluvion there, as noticed in the Memoir, is about forty-five feet deep, and is a loose soil containing few pebbles. I may also observe as favorable to mining operations, that the general complaint of the inhabitants along the river is the great depth they are obliged to go before water is reached; this is particularly the case in the fort of Seronge, five miles below Kotah. On account of this difficulty of obtaining well water, the inhabitants are compelled to use that of the river, much against their inclination; as at certain seasons it is deemed by them very unwholesome.

At Madhapore, there were brought to me some minerals from the bed of the Godavery at that place, which it required little discrimination to decide were of the nature of slate coal. Upon inquiry I found, that after the monsoon at the Dassara festival, persons employed themselves in gathering these minerals to be vended as medicines; and more particularly as charms to keep off the all-dreaded Evil eye, for which purpose they were burnt, incantations being said over them while inflamed. Their Tellugoo name is *assoorpoory*, and it is believed by some of the natives, that they were the weapons with which the

gods contended ; while other maintained the opinions, that they annually grew and were thrown off the river's bed, or sprung like the Cytherean goddess from the water foam ; but all agreed that it was the Pundeetah river that supplied them. I lost no time in proceeding to the Sungum of the rivers Godavery and Pundeetah, and upon receiving, what I conceived from specimens shewn me, correct intelligence of their origin, I ascended the river to a place called Kotah, a small Goand village on its banks, about ten miles from the Sungum, and twenty miles N. E. of Chinnore ; a space of about eighty yards in length, and thirty in breadth was pointed out at the edge of the left bank of the river, the alluvial covering of which could not be much under forty-five feet, and this I was told was the original seat of the coal. Upon examination, I found that limestone, more or less argillaceous, occupied this space ; the upper strata were completely dislocated, and deranged by the force of the current ; the inferior, however, appeared more compact and hard, and as far as could be ascertained, dipped to the N. E. at a low angle. Seeing that the water must have completely denuded these limestones of any shale or coal that may ever have accompanied them, I thought of searching a little higher up in the bed of the river, and observing a small rock of the same argillaceous limestone just above the water, search was made there, when coal along with its accompanying shale and bituminous shale was broken off from the sides of the rock : this left no doubt as to the existence and position of a coal measure. The rock formation in which it is to be supposed this coal measure exists, is that where the mineral is usually found all over the world, and in India without any exception. According to the report of the Calcutta Coal Committee, the depth of the alluvium, and the circumstance of the outcrop being in the river's bed, precluded all possibility of ascertaining the relative position of the several strata ; but as sandstone is found on all sides, and towards the north at the short distance of two or three hundred yards, it is more than probable that here there is no deviation from the arrangement of rock commonly found to exist in such cases. As to the sandstone itself, I cannot give a better description than in the words of the late Dr. Voysey, who travelled over a great part of this country, and must have been perfectly familiar with the sandstone formation of the Godavery :—

“The sandstone varies considerably in composition and colour. Its variations however, occur principally in the neighbourhood of its junction with the other rocks. Its most common cement is lithomarge, which is also found in it in nests and beds of various sizes, and of colour both white and reddish white;” and he might have added, yellow.

But I am aware any description I can give of the locality and of the accompanying strata, will be deemed deficient by the geologist, without specimens illustrative of both. I therefore proceed to give a brief description of those sent.

Box No. 1.—Contains specimens of shale, more or less bituminous, which were broken off the rock along with the coal.

Box No. 2.—Contains specimens of shale found in the same situation.

Box No. 3.—Contains specimens of the argillaceous limestone, composing the dislocated and disturbed strata formerly described. Some of these blocks are from a foot to a foot and a half in thickness, with a surface twenty to thirty square feet.

Box No. 4.—Contains specimens broken off from the compact and hard limestone, that has resisted displacement by the current. One of these will be observed to be water-worn.

Box No. 5.—Contains specimens of sandstone in the vicinity of the coal measure.

Box No. 6.—Contains specimens from a neighbouring hill.

The river at Kotah is one hundred and fifty yards wide, is proportionably deep, and is always turbid. It contains, at this season at least, more water than the Godavery. The country around is jungly; Kotah itself is the first Goand village on that side of the Chinnore Sircar, and is a miserable little place. I sent a party several miles up the river to discover, if possible, any sign of another coal deposit; but they returned without a mineral of any description. About eight miles up the river, among the hills at the village of Yenkatapore, there is found brown clay iron ore among the sandstone. I did not hear of this until I had reached Chinnore, and an opportunity was thus denied me of visiting the locality. I send specimens procured from the place in box No. 7. This ore was formerly smelted; but the works have been abandoned; the natives give a good character of the iron produced. The specific gravity is above 3.

Note on the Anthracite that formed the subject of my Letter of the 28th ultimo.

An intelligent Mootsuddy, with a couple of peons, were despatched to the Jungaum purgannah, where the village of Duntimnapilly is situated, the nearest to the spot where the anthracite was said to be procured. On arriving at Chinnore, he proceeded in a north-westerly direction by Tandoor and Jungaum to Duntimnapilly, which is distant twenty miles from the last mentioned town.* The country between Jungaum and Duntimnapilly is described as particularly wild, with Goands for inhabitants. According to his account, the bed of anthracite is situated on the bank of a nullah among hills, (I regret that not having a large map I can indicate the situation no better,) that it is three feet at its greatest breadth, and that it extends upwards of two hundred feet in length. I give these numbers with some confidence in their being accurate, as he brought a piece of bamboo with him by which the stratum was measured.

Box No. 8.—Contains a carbonaceous sandstone, through which the anthracite was said to pass into the micaceous sandstone, both above and below. A specimen of the latter is in *Box No. 9.*—I send also further specimens of the coal itself. The rock above the mineral was said to be fifteen feet in thickness. It may be added, that this coal is esteemed of great value in the United States, where seven hundred and fifty thousand bushels were sent to Philadelphia alone in one year, (Ure's Dictionary.) It is there burned in peculiar grates adapted to its difficult combustion. It is used also in South Wales for smelting iron.

CHINNORE, 24th April, 1841.

* Jungaum is 65 miles to the West of Chinnore.

Note—I have used the general term sandstone, although there can be no doubt from its position, known connexion, extent, &c. that it is the old red sandstone; for the same reason, to avoid all theoretical views, I have designated limestone by its mineralogical character. It would have been easy to have given more learned terms, but my chief object—perspicuity—might have been compromised by having done so.

Extract from Proceedings of the Numismatic Society of London, 1837-1838, on the comparative status of circulating media at different periods, under the Bactrian and Indo-Scythian Kings.

The number of coins in the different metals, quoted for each reign by Mionnet, are affixed in the corrected series, together with that of those given by Professor Wilson from the Masson Collection, in the three annexed plates. Of the former, the total number is 166, and of the latter, 35; which, aided by Professor Wilson's remarks, are enough for general conclusions regarding the circulating media of the several periods, and thus far elucidating the statistics of this portion of history.

It will be evident that, under the Greek line in Bactria and India, silver and copper formed the commercial medium by which the treasury was replenished. A single gold coin, and another of potin, are the only exceptions to this remark in a series of 105.

Then follow ninety-six coins of the barbarous successors of the Greeks; displaying a remarkable decrease of silver, and nearly as notable an increase of gold. The whole are distributed in the following proportions:

	Gold	Silver	Copper	Potin
Græco-Bactrian kings, to Eucratidas I. inclusively. B. C. 255—125. Monoling.	1	26	5	...
Græco-Indian kings, from Eucratidas II. to Hermæus. B. C. 125—0. Bilingual.	...	14	34	1
	1	40	39	1
Græco-Indian kings of the collateral line, from Heliocles to Mayes. B. C. 125—A. D. 100. Bilingual	...	9	15	...
	1	49	54	1
Indo-Scythian kings, who followed the line of Eucratidas II. A. D. 0—125. Bi.	7	...	35	...
Barbarous princes, who appear to have followed the collateral Greek line. A. D. 100—225. Mostly Bilingual	...	...	5	...
Indo-Parthian kings, who probably followed the Indo-Scythians, and gave place to the Sassanians. A. D. 125—225. Bi.	...	6	41	2
Gold	8	55	135	3
Silver	55			
Copper ...	135			
Potin	3			
	201			

By this statement it would appear, that the proportion of silver (the standard medium of Asiatic commerce in the age of Bactrian independence, as at present) materially diminished under the Græco-Indians, until a substitution of potin, probably to make up the deficiency of the former, appears in the coinage of Hermæus, the last of the Greek Soters; while the silver bears scarcely any proportion to the copper under the Indo-Scythians and Indo-Parthians, and, at first, altogether disappears; whereas, the potin (which was used in great extent in the contemporary coinage of Parthia), is continued: and this may account for the silver drachms of Menander and Apollodotus being then in circulation.

The deficiency of silver seems, however, to have been compensated by an extensive issue of gold, under the first Indo-Scythic princes; of which there are, likewise, many fine unpublished examples in the collection of the East India Company.

The conclusion seems forced on us, that the progressive decrease of silver under the Greek rulers, indicates a decrease in commercial prosperity, arising from the Scythian occupation, first of Bactria, and afterwards of Bactrian-India; while this appears to be contradicted by the gold issue of the conquerors.

But, as the latter have left no known remains of a coinage anterior to their occupation of Bactrian-India, we may infer, first, that the mintage of the line of Euthydemus continued in circulation under the Bactro-Scythians, as did that of the line of Menander under the Indo-Scythians; and, secondly, that plunder (of the temples? in connexion with the introduction of the Parthian worship, as above), rather than commerce, was the source of the sudden riches evinced by the mintage of the latter.

This view will, besides, afford an additional and weighty reason for referring the issuers of the gold coinage—the probable invaders and plunderers of the Greek provinces—to the head of the dynasty, as the immediate successors of the line of Menander; to which position they are equally referred by their imitations of the mintage of Hermæus, found with the coins of that prince, and by the usurped title of *Σωτήρ*.

In agreement with the above, the Indo-Scythic issue would appear greatly to have degenerated under the latter princes of the dynasty, when their exhausted dominions probably no longer afforded materials for an issue in the precious metals.

The poor mintage of the Indo-Parthians might have either been a continuation of the latter, or of that of the later Greek princes. It presents no sudden alteration of currency, like that just alluded to; and, in either case, has the character of a peaceful revolution, or change of dynasty. But as we cannot doubt that the paramount Greek domination in India, as well as in Bactria, was annihilated by conquest, it seems to follow that the change in question has no connexion with that revolution, but was a natural one, from a Scythian to a Parthian dynasty, as inferred in a former note. Such, at least is the conclusion forced on us by the present data, which, we may hope that the continued researches of Professor Wilson, with whose invitation to inquiry the present analysis is an imperfect attempt at compliance, will either confirm or correct. That there were Parthian as well as Scythian rulers in India in the Roman age, is evident from the names preserved by contemporary writers (see Table I.) They are not those of the Indo-Parthians of the coins, and may have preceded them.

JOURNAL

OF THE

ASIATIC SOCIETY.

Report on the Island of Chedooba.—BY EDWARD P. HALSTEAD, Esq.
Commander of her Majesty's Sloop 'Childers.'

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[For much of the information under the head of History, Police, Revenue, Manners and Customs, I have been indebted to the kindness, and long residence in the country of Captain D. Williams, Senior Assistant Commissioner at Ramree.]

DIVISION I.

General Appearance, History and Division.

The Island of Chedooba measures 15½ miles in length, viz. from 18° 40' to 18° 55' 30" N. Latitude, and 17 miles in width, viz. from 93° 30' to 93° 47' E. Longitude, and shews on the map as a square the S. W. angle of which has been reduced. With its dependency of Flat Island on the South Coast, it covers an area of about 200 square miles. Its general appearance and character is that of a fertile well wooded Island of moderate height, and irregular outline. A band of level plain, but little raised above the sea, extends around its coasts, of far greater width on the East than on the West ; within this lies, irregular, low, undulating

hills, varying in height from 50 to 500 feet, enclosing several higher detached mounds of steep well wooded sides, the loftiest of which, near the south part of the Island, rises nearly 1,400 feet.

The view from the top of these higher summits, presents, immediately below a scattered irregular mass of hills, confined principally to the western part of the Island, covered with jungle, interspersed with grass plains of more or less extent. To the Eastward a broad flat plain intersected with patches of jungle; and surrounding all, lie the cultivated rice fields with the different villages on their verge nearest the sea, the coast of which to the Westward is every where strewn with broken and detached masses of rock jutting far out.

The History of this Island is involved in all the obscurity which at present surrounds that of the neighbouring Continent. Under the name of Inaon it constituted in the time of the Mug Rajahs, one of four divisions of a province known collectively with the other three, Arracan, Ramree, and Sandoway by the name of 'Preegree.'

The head authority in each division was then called 'Jah,' and was nominated every three years, to prevent any attempt at independence of the supreme power by the Rajah of the Province, a matter not difficult in time of oppression, confusion, and general disorder.

On the conquest of the Province by the Burmese in 1784. its divisions were still retained, but their names, as well as that of the collective Province were all changed. The latter took the name of 'Lemroo,' instead of 'Preegree,' while the name of Chedooba itself was changed from Juaon to 'Mekawuddee,' and its revenue assigned to the support of the King's eldest sister, condemned to perpetual celibacy, as being unable to obtain a helpmate for her.

The alteration in the names of the Province and its divisions was accompanied by a change in those of the authorities. The provincial Governor was called 'Lemroowrain' or Governor of four countries, a title still given to our Commissioner, while 'Juorooan' took the place of 'Jah,' as designating the head of each division, and is now applied by the inhabitants to the assistant commissioners.

The division of the Districts into Pergunnahs was also left undisturbed by the Burmese, and the head man of each, under the Mug Raj continued to be called 'Soogree.'

Of these Pergunnahs or circles with their Soogerees, Chedooba is divided into seven, viz: Kamman, Krae-rone, Inrooma, Ineubreng, Kyouktan, Tang-roa, and Ree-yueng, the latter its dependency of Flat Island, on its southern coast.

Of these circles, Kammas and Tang-roa, which divide the whole western, southern, and part of the northern portions of the Islands, are the most extensive, but least populous, Kyouktan the smallest in extent. The other three the most productive and populous, and Ree-qyueing the best cultivated.

DIVISION II.

Population—Revenue—Police.

The population of Chedoooba may perhaps, comparatively with the neighbouring countries, be looked on as large, by the census of 1839-40 amounting to 8,534, and when it is considered that this population is confined to the strip of cultivated land surrounding the Island, at least that portion of the Island will be esteemed to have a fair share of inhabitants. No great increase from census to census is at present observed, but as I was informed that formerly the Island possessed a far denser population, evidence of which was afforded in the amount of land now waste, which had formerly been cultivated. I have no doubt that the effect of its present state of comfort and peace must soon develope itself in a large increase of inhabitants, who I was informed by one party were so numerous before the Burmese invasion that famine was sometimes the consequence of the inability of the Islands to support them, a statement I think not to be entirely depended on. As there is but little influx or efflux of strangers, the census from year to year, if correctly taken, presents the changes occurring among the actual Islanders. But from what I saw, and from a portion of the revenue being derived from a poll tax, I incline to think it is greater than the returns shew.

With exception of a very small community of Burmahs lately established on one of the eastern villages the whole population is Aug. Their account of themselves is that they are descendants of parties who originally used to cross to the Island from the mainland and Ramree to cut wood, and who eventually and slowly settled on it.

For sometime subsequent to the English possession of the country, considerable complication prevailed in the district, and partially in Chedoooba owing to the mutual ignorance of the governors and governed.

The mistaken Revenue system introduced in 1827 and 1828, have been replaced by an equitable and judicious taxation: its present result is content, happiness, and peace, its future in all probability an increase in all these, in addition to opulence and prosperity. The revenue is raised from

the produce of the land, and from a light poll tax. There are no difficulties found in its collection, nor oppression resorted to; about 25 per cent. is absorbed by the payment of the collectors, the ordinary native authorities. The Soogree of each circle receives 20 per cent. on his collection, the Ruagon or head villager, 4 per cent., and the Ruacharee or Village clerk, assistant to the Ruagon, 1 per cent. These are also exempted from all taxes.

Besides the above, there are two or more officers in each village called Leedo-gonga, or heads of men, whose negative payment consists in exemption from taxation.

There is a native Police taken from among the people. Their duty consists in maintaining peace and quiet among the villagers, for which purpose some shady tree or bamboo clump is selected in the centre of each village, supplied with a bench and sort of small hut, where day and night, the Leedo-gong sleeps his watch. In fact in Chedooba his office is a sinecure, theft or plunder are not known, the men are too good humoured to quarrel, and I was told that the only call ever made on him, was one only occasionally to settle the few little amiable differences sometimes occurring among the ladies of his jurisdiction.

At the Town of Chedooba there is a small Sepoy Police, their business is to keep up communication with Ramree the provincial capital, and act as letter-men in the conveyance of orders, from the assistant commissioner there, to the different Soogrees.

I subjoin the official Statistics of Chedooba, for 1839-40 or Mng era 1202.—

Names of Circles.	No. of villages in each.	POPULATION.				Amount of Rev of 1839-40.	No. of Buffaloes in 1838-39.	No. of Cattle in 1838-39.	No. of doons of land under Cultivation.
		Men.	Women.	Boys.	Girls.				
Maoun,	5	541	469	446	404	Rs. 3,243	520	545	Doons. 160
Moubreng,	7	531	461	417	377	4,033	675	208	226
Kreroo,	4	361	315	245	245	1,892	547	187	84
Kyookiam,	4	295	276	278	222	2,102	407	121	104
Requin,	2	124	120	106	110	1,219	659	..	75
Joungroa,	3	418	353	317	285	2,347	794	13	115
Kama,	3	240	209	190	179	1,429	287	59	76
Total, . . .		2,510	2,203	1,999	1,822	16,269	3,889	1,133	844
Total of Souls,		8,535							

DIVISION III.

Soil and Productions, cultivated and natural,—Waste Lands.

Soil and Produce of Cultivated Lands.—The general character of the soil of Cheedooba, is that of a light greyish coloured clay, mixed more or less with vegetable mould and on the low eastern parts of the Island, this admixture again modified with a large proportion of fine sand.

The cultivated lands do not generally extend quite to the present beach of the Island; between them and it there exists, throughout its circumference a slip of land varying from 3 or 4 miles on the eastern parts of the Island, to sometimes less than a furlong on the western, which about 90 years since was upraised from the sea during our earthquakes.

This new land is not yet in general cultivation. On the east-north, and north-west it is so in part; on the west it is so thickly strewn over with stones as to make it probable it never will be. Throughout the circumference of the Island, the old beach line which is distinctly traceable, forms the interior limits of the upraised lands. On the eastern parts of the Island, where the soil is sandy, a difference between the older and newer is scarce traceable. But on the western and northern, the purer quality of the clay in the new lands distinctly marks off their soil from that of the older.

Throughout the soils of Chedooba is a large admixture of stones, with exception of those of the sandy plains eastward. They are generally small angular fragments of a soft greenish sand stone, and present no obstacle to cultivation, (except where large and numerous, as noticed above) the effects of exposure to climate evidently breaking them down into rapid composition with the soil.

Large quantities of Coral and Juadrepore are distributed over all the upraised lands. The clayey nature of the soils makes them very tenacious of the rains, for which reason they are well adapted for the construction of tanks, either for irrigation or for the supply of the inhabitants. No water for the former purpose is at present required, for the latter, sufficient is found during the dry season, in the holes of the aullahs, and other natural reservoirs, and in the few springs which exist on the Island. The clay base of the Chedooba soils contributes much to endue them with a great permanence of productions.

They are not manured for cultivation though under yearly tillage, nor is a change of produce, as a relief to the soil, any part of the system of agriculture pursued, nor is the plan of exhausting the soil, and then allowing

it to be fallow for a season, in practice, year by year the same land yields its single crop in due season; the amount which is exacted from it, and to which it is fully equal. Lands in fallow are observable, sometimes extensively; but on enquiry the account always given of them was either that they had fallen out of cultivation from decrease of population, consequent on long continued political disturbance, or that they were lands cultivated for a season by settlers, who had after a time returned to the communities whence they had issued.

From natural causes connected with the character of the soil, and from a practice in use among the people, all the cultivated lands are strictly speaking subjected to an annual process if not of manuring, yet of an addition into the body of the soil of that which must greatly tend to the same effect. The heat of the dry season covers the face of the land with a tissue of deep cracks, in these the decay of leaves, grass, &c. during that season, makes a considerable deposit of vegetable matter.

It is also customary with the natives to burn their paddy stubble, and grass lands immediately previous to the monsoon, whose first rains before closing the fissures, wash into them the ashes thus formed—with regard to the grass lands they are burnt expressly with the view of improving the future crop, and the same benefit is doubtless effected to the rice land by the practice.

Its effect is particularly beneficial to the upraised plains, by assisting greatly the decomposition and dispersion of the calcareous matter upon their surface, and which must contribute largely to bring them into a cultivable state. To illustrate the gradual effect produced by the above means on these particular lands; it was stated to me by an eye witness that the upraised plain of the N. W. part of the Island was 15 years in acquiring its first clothing of grass, not only is it now covered deeply by that production, but many parts have for years yielded crops of rice, and all might do so. Jungle also is fast forming over it. Some parts of the low lands, both new and old, presented a sort of peat soil, still moist in the middle of the dry season, and affording luxuriant and green pasture. These grassy patches were most observable in the Krae-rone circle, which divides, on the north face of the Island, the more clayey soils of the west, from the more sandy ones of the east.

Rice is the staple produce of Chedooba. It is grown on all the level lands which form a land of more or less width around the Island, to which at present all cultivation with slight exception is limited. The yearly amount of this necessary produce varies, more through the fitfulness of temper of the people, than from any irregularity of the seasons. The

revenue claims must be defrayed with the proceeds of a portion, with another portion the family is to be sustained, the overplus purchases the necessaries of the family, and with no people is the list of these a smaller one.

From the more populous Eastern circles of Krae-rone, Inrooma, and Jueng-breng, a large quantity of rice is annually exported, partly in native vessels, which come for it from Akyab, and from the western parts of the Bay of Bengal, and partly in native boats, which come for it from Ramree, Sandoway, Gara, and sometimes from Bassein. The vessels from the westward, and the boats from the eastward generally purchase on their own account, the former bartering some few country goods. It is common for native merchants, or their agents to visit the Island from Akyab, or Chittagong at the season of gathering in the crop, and purchase it up from the different villages, giving a certain amount of earnest money, when it is subsequently collected at a convenient spot for shipment, and vessels sent to take it off. I was very anxiously enquired of by two parties, one from Akyab, the other from Ramree, thus engaged, as to the prices of the grain's market at Singapore, whither both were bound with their venture. A small barter traffic with rice is also carried on by the Islanders with their neighbours of Ramree mainly for fowls.

The western and less populous villages of the Island are also annually visited to see if they have grain to part with, a circumstance depending entirely on the above peculiar temperament of the people.

But independently of the superior advantage to the eastern inhabitants afforded them for a larger rice produce, in the greater extent of their plains, they enjoy also the great benefit of having those plains intersected by deep creeks, generally with a bar at the mouth requiring the assistance of the tide to pass over, but of considerable depth within, where country boats of the largest size, may in perfect security take in their cargo, in the manner pleasing to both parties, quite at leisure. For large vessels also, especially native ones, the anchorage in the straits is safer than that on the western coast, on which although there is anchorage every where, practicable and safe, in the fine season, for such purposes, yet the want of creeks wherein to keep them safe in the monsoon, at present prevents the inhabitants on this part from having any boats for shipment of cargo, which must therefore be taken off at the risk of the purchasers in their own. The rice of Chedooba is considered of very fine quality; a considerable quantity was purchased for the use of the crew of the 'Childers,' and the native

boats employed with her ; the price given was 1 rupee for a basket and a half or 90 lbs., this was cleaned ; grain paddy was at a much cheaper rate.

Both with regard to soil and produce, what has been hitherto stated of Chedoooba stands also true, of Ree-queng or Flat Island, its dependency, and close to its southern shore.

The adaptation of the lands of Chedooda to the culture of rice, over those parts where it is now grown, is so clearly shewn by the quantity and quality produced, that it would seem hardly to warrant any expectation of benefit to be derived from change of produce to be made on them, and those of like character. To such a change also the preoccupation of the present lands in this produce, and the necessity (if practicable) of instructing the natives in the village of any new one in its place, present obstacles difficult to encounter, if not insurmountable.

In considering therefore for any general improvement in the agricultural value of the Island, as connected with the grain in question, regard can only be had to the extension of its culture where practicable, or to an improvement in the method of it, if necessary. On this latter point I am not competent to speak. On the subject of its extension I may say, that by observation made in passing through the country, from four to six times, the extent at present under tillage exists as waste land, applicable for rice. Limiting its cultivation to those flat plains where alone it can be extensively carried on, so that, assuming all rice land to be most profitably occupied in this production.

That the method of tillage does not admit of material improvement, and also, that of this grain no second crop can be produced in one year, and the above estimate would form the greatest probable increase of annual value derivable from this source. It might indeed be increased if a second crop of other produce could be procurable from the grounds, but even for their full occupation in the staple produce, European energy, intelligence and capital must supply the means.

Tobacco forms the next principal produce of Chedoooba. In general its cultivation is confined to small gardens of about a rood each, in the immediate vicinity of the villages.

The gardens are all clearly kept, and a lighter mould with more vegetable matter in it, is preferred for their soil. The plants were much closer together than I have observed them to be cultivated in Syria, and the Levant, and I think must want light and air in ripening the leaf, as well perhaps as room for arriving at full size.

I found but one spot on the Island where its cultivation was at all extensive ; this was in a small valley about a quarter mile in width, in the

interior of the Island, situated high, and near to the large volcano of Ineng-brew, though in the Inrooma circle. The soil was an alluvial one with a large proportion of clay. A stream ran through the valley. Here were from 8 to 10 acres of tobacco gardens, the plants with much more room given to them, and this spot I was told produced the finest on the Island.

The Tobacco of Chedooba is highly prized, and deservedly so. I procured a quantity of it to be made up into cigars for my own use, and was both surprized and gratified to find among these, several of as high and delicate flavour as any from the Havannah which I had ever tasted, and for the best of which, but for the manufacture, they might have been mistaken by any one, not knowing whence they came. The Tobacco of which they were made was grown in the neighbourhood of the South Hill, and on examining those which gave such satisfaction, they appeared to be made from leaves larger and riper than most.

The native, though never without a cigar from the time even before he can speak, does not smoke pure tobacco; the stems and roots of the plant are cut up into shreds, and with a small proportion of the leaf, enrolled with the leaves of a plant supplied from the jungle, in a wrapper of Tobacco. He cannot therefore be considered a judge of the quality of his own produce, by those who use the purer article. The leaf when gathered, is dried in the sun, and when dry, strung through the stem upon slight skewers of bamboo near two feet in length; these again are woven together with one or two strips of the same material into bundles of between 2 and 3lbs. which sell for our rupee each. This is the preparation of the larger leaves, and is for sale, the refuse supplies the family stock.

The whole of this produce which, from what has been said, will not be concluded to be extensive, is disposed of from time to time along the neighbouring coast, and the Island of Ramree, some of course finding its way further, but at present with exception of the larger cultivation mentioned, it is grown in sufficient quantity only by each family, to be kept instead of ready money, wherewith to supply the different wants or wishes of its owners, its quantity and estimation always making it an article of ready sale or barter.

Tobacco was always found growing on ground perfectly flat. It may be that the heavy rains of the monsoon oblige this, in order to prevent the plant, if on a slope, from being washed away, though this was never assigned as a reason, but simply convenience. Should the above supposition have weight, it would of course tend to limit the cultivation of a plant which necessarily standing very open, is therefore much exposed to such peril

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Still there exists throughout every part of the Island, waste lands whose soil would be found applicable to the cultivation of tobacco to a very large extent, even if subject to such limitation, and I am strongly impressed with the opinion that such cultivation would prove one of, if not the most valuable to which the unoccupied lands (not being rise grounds) could be applied. The present extent in which this plant is grown over all parts of the Island, I incline to look on in the light of a experiment only, but one truly valuable, at once for its extent, and its success, and therefore affording data under prudent precaution of similarity of soil, &c., on which to found expectation of great profit to be derived from its extension, in which case the present experience of the inhabitants in its culture, even when necessarily modified with view to improvement, would be found a valuable co-operation. It may be that my own estimate of the flavour of the tobacco I have spoken of above, has been erroneous, but even if so, the general mildness of all Chedooba tobacco, when improved by greater attention to its culture and preparation, would give it an extensive preference over the strong Manilla; whereas should it be found practicable to grow extensively a leaf of the flavour and quantity which I think to have found in the above specimens, Chedooba would become a formidable rival to the Spanish settlement.

The employment to be given by the manufacture of the leaf, if extensively grown and saleable, would add another source of benefit to be derived from such a step.

Cotton—Is grown in several parts of Chedooba; generally spots in the jungle are selected and cleared for its cultivation, which is however very limited, not affording employment by its manufacture for the women throughout the year. The surplus required to keep the looms (of which almost every family possesses at least one) at work, being imported from the main land.

Excepting a few plants in the gardens of the villages, I found no cotton in growth, though land were being cleared for it in several parts, and some of them extensive. Those few plants appeared to thrive well, but from the shortness of the staple of that which I found in use, whether of the Island produce, or the Mainland, I conclude that what is at present grown is as inferior in quality as limited in amount. It was however very clean and white, the articles manufactured from it, a few coarse cloths for the person. The soils on which the best Cottons of India are grown, I have understood to consists generally of a rich deep mould; if such be the case, and necessarily so, for the perfection of this plant, I fear that Chedooba holds out no prospect of benefit from any

extensive culture of it. That soils exist in the Island, where it may be grown with advantage to greater extent, and of better quality than at present, I doubt not, but I think that the advantage to the Island would be limited to the production of a supply of it sufficient to give fuller employment to the native looms, as at present wrought for domestic purposes, without recourse to importation.

In the gardens of every village Sugar Cane in small patches is to be found; it is mostly of a red kind, small, and woody in stem, with short joints. In the Eastern parts of the Island it is grown to extent sufficient for the production of a few maunds of jaghery; but in the Western parts, where it is of more recent introduction, a sweetmeat for children is the highest object of its growth.

As with the Cotton, and for the same reason, I incline to the opinion that Chedooba does not hold out the prospect of any extensive growth of the Sugar Cane.

The only place where I have seen this valuable produce flourishing in this part of the world has been in the Amherst Province of Tenasserim, where it was luxuriating in a soil very different from any which were found, or are I think to be found, in Chedooba, a dark rich vegetable mould. In the neighbouring Island of Ramree it thrives well, and it is fair also to state that not only is the Chedooba plant one of very inferior quality, but that not the slightest trouble in the way of cultivation is taken with it; portions of the cane being merely put into the ground in the month of May, and left to nature to bring to perfection. That therefore as with the cotton it might be both improved in quality and increased in quantity, admits of reasonable expectation. But there seem to be insurmountable obstacles to Chedooba ever becoming of importance as a Sugar Island, arising from the unsuitableness of the soil in general, and, (under the supposition of the occupation of all rice grounds in the cultivation of that staple,) the too limited extent of surface for such purpose, clear of steep hill sides, which would remain. In passing through the jungle on one occasion a cleared spot of some 4 or 5 acres was found occupied half with hemp, and half with indigo.

This was a speculation of a native, and the unusual enterprize it discovered promised to bring its reward, as both crops appeared healthy and flourishing. The planting of Indigo is very limited, the plant of an inferior quality, and its preparation a very clumsy operation. It is not grown for export, but sold in the different villages to dye the produce of the native looms.

I could not learn that the Hemp was a more common production than the other; in fact it is grown in small quantity only on the Island, to whose inhabitants it supplies material for the few nets they possess. I had no means of judging of its quality, other than from the healthy appearance of the plant, which at least seemed suited to its soil, and therefore to afford prospect that this produce might with success be more extensively cultivated in portions of that district of the waste lands which lie between the available rice plains and the steeper hills. In conclusion of this notice of its agricultural produce, and in contemplation of plans for the future improvement of the Island in this regard, the general impression resulting from examinations of its soils, and consideration of the character of its inhabitants, was that such object would be effected in the best and readiest manner by increased care and attention given to extension and improvement of crops already grown on the Island, rather than by attempts to introduce on it extensively any new produce.

A good supply of cattle exists on the Island. The buffalo gives his strength for the more arduous agricultural labours. The lighter cattle draft the produce in hackeries with which the Eastern villages are well supplied. The breed is small, but strong, and supplies very sweet meat. Labour in connection with agriculture is however the only demand made on them by their masters.

Fruits are not very numerous on the Island, unless the multifarious produce of the jungle, familiar alone to a Mug appetite, is to be honored with the name. In the struggles of past times between the Mug and the Burmah, Cheedooba had its share, and from one of the measures adopted during those times in connection with this head, viz., the destruction of all its cocoa-nut trees, that they might afford no sustenance to an invader, it still suffers. Of this valuable fruit therefore there are comparatively few, mostly young trees, but they thrive luxuriantly, and a few years more if attention be paid to their increase, would see the Island supplied with them in quantity sufficient for more valuable purposes, than that for which alone it is now esteemed—the means of making complimentary presents.

The plaintain flourishes well; but is not much cultivated, and is generally an inferior sort, containing a large hard seed.

The pappa is common, and large in all the village gardens.

The tamarind flourishes in great luxuriance and grows to a large size. This tree almost universally supplies shelter and shade to the villages.

Its fruit is not much used by the natives. It is found growing indigenously on the second or old beach, but was observed nowhere else ; with scarce an exception, this being also the situation of the villages.

The mangoe grows wild to a great size. I have measured some of more than 4 feet diameter—its fruit is very inferior, nor is it attempted to be improved.

Both the lime and the orange are found in many of the villages, and thrive well.

The orange is of that sort named elsewhere the sweet lime, and if extensively cultivated would form a very grateful addition to the luxuries supplied to the capital.

Vegetables as fruits, are also of small amount. But here again as with his orchard, the Mug looks to the jungle to make up the deficiency of his garden produce.

Yams are good and large, but plentiful only in the eastern parts.

Many species of pumpkins and gourds are grown in almost every garden ; brinjals are very fine but not in plenty.

A small shalot is grown in the gardens generally, and some fine onions, which I was taking with me for my own use, were both so much admired and demanded for seed, that this improvement to the Kitchen Garden, will probably in due time become general.

Chillies of all sorts are in every day demand for the curry.

In introducing to notice the more natural productions of the Island, in the vegetable kingdom, it may be well as before first to speak of the soil in which they are found.

This is with little exception of one character, a loose friable earth of light yellow colour, having the general clay base much modified with decayed vegetable matter, the angular fragments of soft sand-stone having passed from a greenish into a dirty yellow colour, and being in a state of rapid decomposition.

The exceptions to this were found in a few spots to consist of a soil bearing more of the character of mould. The above soil extends throughout the interior parts of the Island, embracing all the hills higher and lower down to those flatter lands which have been noticed as applicable for the extension of rice cultivation, and constitutes that of the jungles, which are co-extensive with it.

These in their general character are open, consisting much of detached clumps of bamboo or of trees from 1 foot to 18 inches in diameter, well separated below, but in their branches having creepers thickly entwined. Throughout the lower jungles, open spaces, some deserving

the character of small plains, are of very frequent occurrence. On the higher hills, the trees are closest of growth and largest of size, but still clear of understuff. Throughout therefore, no serious obstacle is presented in the task of clearing the land for cultivation,—a Mug, with a good dáh felling the trees over half an acre a day, and a footman may penetrate without obstruction in any direction.

The tops of the highest hills were visited with ease, save from the steepness of ascent, parts being traversed, which the superstitious fear of the Mug would never have permitted his voluntary approach to.

Timber of great size, and some of valuable quality, is to be found, but it is confined to the very summits of the highest hills, and is therefore partly inaccessible, nor would its amount ever remunerate the labour of constructing roads for its transport. The soil in which these grow is of the same nature as that described above, but within a few hundred feet of the summits, all of which are very steep, it is piled up in the loosest possible manner. The stroke of an axe or dáh on an extensive hill top, would so shake it for a space of 150 yards around, as to make observation in the quicksilver of an artificial horizon impossible.

Precisely at the spot where this loose texture commences—commences the growth of the large timber, increasing in size thence to the summits, and from the trees not being deciduous (or at least not so at the same season) a most marked line of separation is thus traced out between these and the smaller leafless jungle below.

The wood oil tree was the most conspicuous in growth and size, of the larger trees of these summits.

One was felled on the west hill, which measured in diameter at the respective ends, of a 60 feet length, 4 feet 6 inches, and 3 feet 6 inches, and another is left standing as a mark, on the summit, which measures 21 feet 4 inches in girth at 6 feet from the ground. The wood of this tree will not, I fear, be found valuable as timber, but its produce, the wood oil, has yet to be better appreciated than at present. This substance is produced by cutting a hole into the body of the tree,* and kindling a fire in it; the flat floor as it were, of the hole, has a groove cut in it, which receives the oil as it crudes from the wound, and whence a split bamboo conducts it to the pots placed for its reception; the quantity thus yielded from a large tree is surprisingly great. In felling the above mentioned individual the oil ran in a stream from it, and it must have contained even tons. The strict propriety of designating it an oil may be doubted. It has always

* See Dr. Spry's Visit to Arracan, No. 110.—ED.

seemed to me more like a varnish; it speedily forms a highly polished surface on wood work, and has a fine aromatic scent, not unlike that of cedar; mixed with reeds and dried, it makes a brilliant and fragrant torch. The colour of the wood is a dull pink.

In the course of clearing these summits for observations connected with the survey, many other trees were felled exhibiting characters apparently valuable as timber. Among the natives there were differences of opinion about their names, and waiving even this obstacle to any description of them, the remark already made of the difficulty opposed to their being brought down, renders such attempt unnecessary. The oil trees would be found most valuable as a source of supply for that material, and perhaps many of their neighbours also would be found more useful living than dead, by the produce they may be found to yield. One of these, of large size, and with a bark similar to cork, was found to produce caoutchouc in great abundance. On cutting through the outer rough coat, a soft inner one, nearly an inch thick, is found closely attached to the more solid wood; on wounding this, the caoutchouc exudes freely, of a consistency and colour like thick milk. The tree was much avoided by the natives on account of the noxious quality of this milk, which if by accident entering the eye, on the tree being struck, so as to wound it, was said to produce certain blindness.

Another tree of very large leaf but moderate size, was also much avoided, and great care taken in felling it, to prevent its juice from touching the skin, which it was said to blister and poison. The adhesive quality of this substance was therefore more taken for granted than proved.

A plant, with the appearance of a cactus, but growing to the height and size of a tree, and known perhaps generally under the name of *Sisso* (not the timber tree of that name) yielded the caoutchouc in the greatest abundance. On severing a leaf, it ran forth in a small stream like milk. Many of the creepers also contained it in large qualities, and in one spot of the jungle of the Krae-rone Circle, I found the Caoutchouc tree of South America, affording prospect that as European intelligence and enterprize became more attracted towards the products of India, that continent may some day find its exclusive trade in this every day increasingly valuable article, formidably disputed. The wild cotton tree grows to a great size, and at the time seen was covered with a mass of its beautiful crimson flowers and flocks of birds. Its wool is sometimes used for stuffing pillows or beds.

The Gamboge tree was found of large size, and in considerable quantity, in clearing the jungle from the summit of the N. W. Peak; it was well

known to the natives; but no use is made of its beautiful gum, which covered the stems in considerable quantities. It lives in the higher jungles.

It is not doubtless the only tree in these wilds yielding a valuable gum, but want of acquaintance with botanical science prevented researches of that kind, which might have led to useful discovery. The safety and facility, and even enjoyment with which such researches may be carried on in the fine season, in the woods of Chedooba, seem however to point them out as a spot very eligible for the careful examination of an able botanist, unless indeed they be considered too limited in extent to exhibit a sample of the general character of the jungles of this coast.

A very brilliant crimson gum was found to flow in great quantity from a large creeper (*Tallee-medzou-nowy*) which is very common. If dried speedily in the sun, becoming very brittle, but retaining its color, it is of very astringent quality, and is used in some diseases as a medicine by the native quacks.

I may not fail to mention another creeper, whose properties are as valuable as interesting, and not the less so from its being found every where, both high and low. It is truly a traveller's friend, and the wandering Mug well appreciates its value. With his *dáh* he cuts off a junk and quenches his thirst with its contents, a pure, tasteless, cool water, of which it contains as much as its large numerous pores will hold, and which are immediately emptied by holding the piece perpendicular. A piece about 2 feet in length, and as thick as a small wrist, gave rather more than half a pint of water. In the rainy season it would have given double that quantity.

In travelling through the jungles, the liquid of this water creeper (*Jabroon nony*) is the constant beverage of the natives, when not otherwise supplied with that necessary, and its universal presence makes him very independent in his choice of road.

The rattan is every where found in the jungles, and performs all the ordinary duties of rope; it grows to a great size; two were taken from the West Hill measuring 114 feet in length, and $1\frac{1}{2}$ inch diameter.

Although Chedooba may not be looked to for supplying valuable timber to other parts, yet for its own consumption, and most, if not all domestic puposes, it possesses amply sufficient to meet any demand. For such purposes plank may easily be brought down from the hill, whence the whole tree must be immoveable. The lower jungles contain woods, perfectly adapted to such uses, and in those of the Eastern Plains was found the *Thew-gaan* growing plentifully, some of the trees between 2 and 3 feet in diameter, and which itself would supply material for almost all

purposes. The wood of this tree is hard and close grained, of a yellow colour and most durable. In the Southern Provinces of Tenasserim it grows to an immense size, and also in the Sandoway district; hereafter its qualities may be appreciated by other than the Natives, with whom its durability has given rise to the proverb that 'a Cemoe of Thew-gaan lasts 99 years.'

It has been thus seen that the soils of Chedooba to the very summit of the Hills, and even there more so, are both productive and easily wrought. That therefore in any future agricultural improvement of the Island, man's industry will lay claim to a very large portion of that extent, now entirely in a state of nature, there can be no doubt; and over the face of all the lower hills, crops of various produce take the place of the jungles, which now occupy them. Such cultivation, even though limited to the extension to the greatest amount practicable of those products which are now but so partially grown on the Island, would therefore leave but a narrow space to be provided for, below those steeper, almost precipitous hills, which must always be given over to nature whereon to maintain supplies of timber and fuel. What such a space might be most profitably occupied with, it is perhaps attempting to look too far into the probable future, to make it other than presumption to speculate on. Yet in considering the nature of the soil, and comparing it with that of the spice gardens of Penang and Singapore, it has seemed at times likely that a similar produce might be found practicable here. For taking into consideration the very great disparity in the mode of the distribution of moisture between the two localities, still the pepper vine flourished at Sandoway, and at Mergiu, if not Moulmein; places all subjected to the same peculiarities of season. The growth of the Nutmeg, Cloves, and Coffee, are not yet despaired of.

Of the productions of the animal kingdom, the Island exhibits but a limited variety—under the head of agricultural produce it has been already mentioned, that large cattle thrive, and are plentiful and might be no doubt much improved—not only at present are they not killed for food, but even their milk is not used, and authority was obliged to be exerted in order to procure this luxury in the midst of herds.

The use to which they are applied has in the same place been already noticed, and beside them there are none.

One pony lives on the Island, the property of the Soogrees, and two goats are claimed, as belonging to the party of police, which is stationed at the chief village of Chedooba.

Of wild animals, the deer is the largest and most plentiful ; they are very numerous throughout the Island, though I never either heard or saw but one species, that which is generally known as the 'barking deer.' The natives run them down with dogs ; they have no means of shooting them. The flesh was found less dry and unflavored than was expected.

Next in size and number to the deer, is the wild hog, the only species on the Island. They are not large, but numerous, especially in the jungles which lie closest to the rice lands, on which they commit heavy depredations, and our assistance was frequently invoked to destroy at least some of the enemy. But in general the labour of the day was deemed enough for our party without trenching on the hours of rest, which was necessary in order to comply with the request.

Jungle cats are found but are not numerous, but one was ever seen by any of our party.

Squirrels are plentiful, and of large size, though of but one species ; a dark brown in colour throughout, with exception of the throat, and a narrow stripe along the belly of yellowish white. One was shot of the size of a full grown rabbit ; it was a male, his lady in company was of more delicate size.

Monkeys we heard of, but I much doubt their existence on the Island, at least it is strange that in so long and extensive a traverse of it, such an animal was neither seen nor heard.

The freedom from any formidable wild beast is a circumstance of advantage in these countries, which may not be passed over without remarks ; it contributed largely to the comfort and freedom with which we were enabled to penetrate throughout the Chedooba, forming a source of congratulation when obliged to take up a night's lodging, or a day's journey in the jungle.

The Natives state that a tiger did once attempt a landing on the Island, but fortunately being seen while yet swimming towards the shore time was afforded to the inhabitants of the nearest village to prepare for his welcome, and before he could gain footing, either for attack or escape, he was cut in pieces with their dâhs, since which, his example has never been followed.

I know not how far the swimming qualities of a tiger may bear witness to the truth of this story, but the feat in an opposite direction was safely performed by one of the elephants which were placed at our service, which after breaking from his ropes, swam the straits, and landed safely on the opposite coast of Ramree, a distance of seven miles at the least, where he was recaptured and sent back.

Of reptiles, one snake was seen, and a few lizards and insects, the most numerous and beautiful are the butterflies, which were found even on the highest peaks. Bees are plentiful, but the jungles alone supply the honey, which is very sweet and good, and serves throughout the Island in the place of sugar.

Fish forms a very important part of the diet of the Mug, and mainly in this view, are the villages of Chedooba formed around the shores. It is very plentiful though not of any great variety. The most common is a species of bonetea, a muscular fish of rapid motion, and great strength, though seldom arriving at a weight of 4 lbs. It has a very thick smooth skin, without scale, and is of silvery white, longitudinally spotted with blue. On the western coast in the sandy bays, they are very numerous, and are taken in great plenty with hook and line.

The bamboo supplies the fishing rod, and in the evening, when most readily taken, the shore may be seen with 20 natives in a line from the nearest village, as close together as they can stand, up to their middles in the water, with their baskets slung on their backs, and casting their lines as rapidly as if fly fishing, laughing and joking at their success, without the least fear of driving their prey away, though they must be among their legs. The flesh of these fish is very firm and nutritious.

Very great quantities of a tiny little fish, most similar to, if not in fact, the Anchovy or a small Sardine, are taken on the same coast. They are dried in the sun without any preparation, a day or two's exposure being sufficient for the purpose, and exported in great quantities to Ramree and the neighbouring coast; each family also of the western villages where it is taken keeps a large supply, and demand is extensively made for them by the less fortunate communities eastward, so that they form a valuable adjunct to the resources of that portion of the inhabitants in whose neighbourhood they are common. The method of taking them is perhaps peculiar, and forms an interesting and lively scene. The morning is the time of the best 'take,' at which time, and when near high water, young and old assemble on the sand in groups, with flat open mouthed baskets of bamboo work, awaiting the opportunity for a catch. This occurs when the shoals of tiny fish are driven for supposed safety close into the beach by their larger, persecuting, and ravenous brethren. Then away dashes the nearest group of expectants into the water to the back of the surf, which is constantly, though not heavily rolling in on the coast, and driving back the original pursuers, face round in shore and place the flat mouths of their baskets in line together, just outside the

retiring wave, receiving from it, its finny contents. Sometimes more than a gallon will be thus deposited in a single basket.

The uncertainty as to where the shoal will come in, and the rapidity and ability with which the fortunate group take advantage of their opportunity, afford all the excitement and amusement to these cheerful people of a game of chance, and cannot be looked on by a stranger without interest. Flocks of cranes, crows, kites, and gulls of many sizes, colours, and voices, looking out for the stragglers on the sand, who have escaped the mouths of the fishes and the baskets, form an addition to the scene.

The grey mullet of good size and flavour is got from the creeks of the east side of the Island. Rock fish are plentiful, but not easily taken; when intended to be preserved, they are split into quarters, kept together at either end, and then opened by strips of bamboo, and the whole hung up to dry in the sun. Skate were frequently seen, but none caught, they were often observed to make very high, though clumsy leaps, a feat not often I believe, practised by flat fish. A fish of considerable size from 12 to 20 lbs. weight apparently, and in form resembling the salmon, was frequently seen of an evening performing very astonishing leaps. They were always quite perpendicular, and therefore appeared as a gambol, more than an effort to take prey, and sometimes extended to a height of 30 feet.

Of shell fish we found craw fish and prawns, the latter of great size and very delicious; they are limited to the creeks of the east side of the Island, where also the one in the neighbourhood of the Meug-breng village, possesses truly fine oysters. They are large, but of a flavour as delicate as our own Colchester luxury. They were in high condition when we visited their neighbourhood, and it may be lamented that they are not more generally known, and attempts made to grow them elsewhere. They have been transported to Kyook Phyoo, and do well there.

Turtle are common, and are taken by the natives on the sand islands and bays. They are of large size and of good species, but I can make no mention of their quality as food.

Many beautiful and valuable species of shells are to be found on the flats off the North Point of the Island, where however but little leisure or opportunity of dredging for them was afforded.

Fowls are plentiful on the Island, and supply the most solid food to which the natives are accustomed. The demand for them by our people raised the price latterly from 18 to 13 for the rupee. They are of good size, and good flavour.

Of wild birds, the Sarus is perhaps the largest on the Island, and is plentiful. They are common in other parts of India, and are, I believe,

good eating. There are a great many varieties of the Crane, some of very beautiful plumage and great size. These constitute the greatest portion of the feathered inhabitants, and would supply perhaps some new and valuable varieties if not species; Doves are very numerous; a small green Parrot is found, and some few green Pigeons were seen. But in general, other than have been mentioned, the birds are of those species most commonly met with in these climates. The jungles are however scantily peopled, though I may not omit to notice one which, with its sweet and soft note late in the evening, often gratified us, and was deemed not an unworthy brother songster of the Nightingale.

The Mineral Kingdom—Though bare of much value, exhibits specimens of some interest.

Nodules of Iron ore of rich quality, are, on search, to be found generally either embedded in the greenish sandstone, or having been detached from it.

In the former state they were found most numerous, on one of the reefs of the North West Point called the 'Saw reef,' and in the latter on the North beach. But in neither case in quantity sufficient to make them valuable for other objects than those connected with science.

Specimens of copper ore, and some few of silver, were found on careful search, lying on the barren surfaces of the different volcanoes. They are all of very small size, and their amount limited as those of iron, and like them give no indication of the existence of the ore to any greater extent. A piece as large as two eggs was recorded as the largest ever found.

Petroleum is found on the Island, and might be extensively produced.

Two wells sufficiently near each other to afford the conclusion of their possessing one common source, exist in the Krae-rone circle, yielding annually about 60 pots each. A third is found in the 'Mroomce' circle, but it has been destroyed by fire, and yields nothing, being the property at present of no one in particular, the soil around it, is, however, full of the oil. The fourth and most extensive is in the Fangroa circle, and yields near 200 pots in the year.

The method of collecting it is simple; the earth is turned up to a depth of two feet, and a bank of soil raised round a square of about 20 yards, thus disturbed, so as to form it during the rains into a shallow pond of about the above depth. The surface of this pond is in a constant state of ebullition from the escape of gas, with which comes up the Petroleum.

It collects on the surface in three different forms. A green fluid oil first spreads itself over the spot where the gas is bubbling up; as it extends, its edges exhibit a brown curdled substance resembling half-congealed dripping, and amongst this, as it becomes thicker, is seen gathering in spots, a dark brown substance of the color and consistency of molasses. This latter is used to preserve wood, to saturate paper for umbrellas, and is sometimes burnt. But the fluid of green color, is that mostly used to supply lamps. The curdled substance is used with the dark in the coarser purposes to which it is applied. This is the least valuable, and sells at 5 pots for a rupee. The other two at 3 pots for 2 rupees.

A bamboo is used to skim the surface of the ponds, and bring the substance to the bank, it is scooped up with a cocoa-nut shell and put into the pot. It floats so lightly on the water that this process is quickly and effectually performed. The break of day is the time chosen for the operation as from the cooler temperature, it is then of harder consistence on the water, and easier and cleaner skimmed. In the heat of the day it becomes so fluid as to make it difficult to collect without a large proportion of the water.

In the months of March and April the pond gradually dries up, and the oil can then be no longer collected from out the soil. The pond is then dug, and the whole soil in it as much disturbed as possible; on this operation depends the quantity to be yielded during the next season, and the deeper it is dug, the larger will be the produce; while on the other hand, if it be neglected, which is most commonly the case, the quantity of oil to be collected will be very materially diminished. A sort of superstitious fear is attached to these ponds, and on no account would a native dip his foot in its water, though he will not hesitate to dig the soil when dry, nor to handle its produce, to which no sort of deleterious property is attached. The state of ebullition without apparent heat may occasion this feeling among them.

The ponds are surrounded by a rough hedge of stout sticks, to preserve them from the intrusion of buffaloe or deer. Insects were seen in them. I had no means of collecting any of the escaping gas, which I should otherwise have done, but no heat perceptible at the surface is employed for its extensive developement. The Thermometer where the greatest ebullition was going forward shewing but two degrees more than the atmosphere, viz. 74°.

No doubt this mineral produce, might with ease, and little expense, be increased to a very large amount, and the oil has yet perhaps to be

better known, and better appreciated than now, when its value will in all probability be much increased.

I know not whether it has ever been thoroughly analyzed, but the almost pungency of its scent seems to proclaim the presence of a large portion of Naphtha.

In composition it differs from the tar produced from the wells of Zante, or the pitch of the Lake of Trinidad, partaking in all probability the character of the oil, which is found in the wells of the Irrawaddy. The material from these is in considerable use in our Tenasserim Provinces, and its native country, as a preservative of wood from the attack of the white ant, which it effectually prevents, and it is in considerable demand in the construction and preservation of the wooden houses of those countries; affording reason to believe that this, its well known and well tried property, might, with benefit, be more extensively made use of in other places. In a dwelling house perhaps an objection against the painting of the beams with petroleum might be supposed to lie in its scent; though this may prove but a supposition, and at any rate it can form no objection to its use in stores and godowns, and other buildings of that nature, whether public or private. The expense annually incurred in Calcutta for repairs, called for, from the above cause of destruction, where it is necessary to examine, if not renew timber once in 3 years, seems at once to point out an extensive sphere for the application of this, its valuable property, in connection with which is also its employment in the preservation of spars for shipping.

The extension of the wells which are all situated in the jungles, and an increase of their depth so as to hold water throughout the year, are simple means by which this produce of Chedooba might be at once largely increased to meet such extended demand, at present I believe the use of the petroleum to be almost entirely confined to the limited application it finds among the natives. The only other mineral production it remains to notice is coal. This, or a lignite, was found about a mile within the western beach in the Circle of Tang-roa.

It had been known for 2 years, and had been dug into, to a depth of perhaps 5 feet without exhibiting any improvement over the surface specimens. It was found shewing itself for a distance of 20 yards in an east and west direction. Its situation, a little above the water mark of a dry creek, formed by the first and second lines of Hills, and its dip an angle of 45 into the body of the latter, which rose 800 or 1,000 feet above the spot where it was shewing. In formation it consisted of a series of layers varying from $\frac{1}{16}$ of an inch to 3 inches in thickness, se-

parated from one another by their laminae of ferruginous sand. It was very brittle, with a dull fracture, and smouldered, but would not ignite. Neither from its situation nor its quality does it promise to become of any value.

DIVISION 4.

Climate.—Chedooba, in common with the Arracan coast, has been generally considered as possessing a climate peculiarly fatal to Europeans, and the mortality of the Troops who occupied it during the Burmese War has given but too painful cause for the opinion.

Nevertheless I cannot but think that its insular situation, and its freedom from that extent of muddy creek, and Mangrove swamp, which peculiarly characterizes the coast of the mainland, together with the greater openness of its jungles, must be the occasion of some difference between them, and that in favour of the Island.

Its seasons are those of the adjoining countries, and may be divided into wet and dry; the rain commences its visit in the beginning of May, with variable winds and intermittent showers, which, increasing in frequency and duration, introduce the deluge which pours down incessantly from the middle of June to that of September, during which period 250 inches of water fall. Thence to the month of November is occupied with the gradual taking off of the rains, which from that month cease till the following May brings them round again.

In every country subject to such periodical rains there are two seasons when the sickness, which is the peculiar one of the climate, prevails, viz. at the commencement and taking off of these rains. Even in those countries which, but more partiality, are subject to a wet and dry season, as Italy, the Levant, and southern shores of the Mediterranean, the same effect is produced, and spring and autumn there, bring with them, their ever accompanying miasma fever. Under the effect therefore of a tropical climate, where the change at this time, in operation throughout the whole vegetable kingdom, is so much more extensive and violent, the effect of the greater developement of noxious vapour, must be necessarily looked for; and accordingly these periods are found to be the sickly seasons of Chedooba, and the coast around, and their regular return calls for great care and prudence on the part of the European, for whom, occupation of mind and body, as active and full as regard to unnecessary exposure will permit, may be strongly recommended then, as perhaps at all times, as a valuable addition to other precautions; as it has frequently been found that our sailors and soldiers, have suffered less from the

effects of climate when under the exposure, than when mind and body have alike been unoccupied and unenlivened.

Exposure to the direct heat of the sun of Chedooba, and its neighbourhood, is at all times of the year to be carefully avoided, and such imprudence will be the almost certain occasion of illness to an European, to whom the simple remedy of a chattah is always at hand; some peculiarity in the atmosphere appearing to make its rays more than commonly obnoxious at all times to his constitution; but this is more particularly the case in the months of March, April, and May, when the natives themselves are much concerned to avoid the intenseness of its heat. The mornings and evenings however, even at this time afford 4 or 5 hours, when all out door duties may be performed.

The above months constitute the hottest season of the year. The Thermometer in the day ranging at times to above 90°, but falling, from towards evening till before sunrise, down to a temperature, which is pleasantly cool throughout the night, a benefit enjoyed all the year round. On the main land, the nights at this season are frequently accompanied by a dense mist almost amounting to a rain, arising in all probability from the condensation of moisture, attracted from the large extent of water surface exposed by the numerous creeks.

Chedooba, with nights equally cool, and more healthy, is free from this peculiarity. But with the mainland, is, during the day, at this season, subject to a dry haze, at times to thick as so hide the view of the land; at a very few miles distant.

The heat at this time is greatly attempered by the fresh sea breeze constantly blowing, which gradually veering from south-west to north-west, with only a decrease of strength during the night, takes the place, at this latter point, and time, of the direct land breeze, which blows during the night in the cool season.

This cool season, the most enjoyable, and the healthiest time of the year, extends from the setting in of the north-east monsoon, towards the end of October, to the middle of March, during which time the climate is very delightful, the temperature seldom rising, excepting as the season closes to that of the summer heat of our own country. But the sun at midday is still very powerful, and direct exposure to it, to be avoided. This was the season during which I traversed the Island, and though constantly in the thickest jungles, sometimes by night as well as by day, I do not remember to have suffered a headache.

The sea breeze at this time sets in at 10 A.M., and falls with the sun, shortly after which a cool land breeze from the eastward takes its place, till

about 9 A.M., when an hour's calm is again succeeded by a breeze from the north-west. The change of temperature was found very great during this season, between day and night, with the exercise of walking, the lightest clothing was found most suitable during the day, but about two hours before sun set the temperature falls rapidly, and at night with the land breeze blowing, two blankets and a counterpane were not too much to prevent actual cold. This change must always be carefully met, by dressing in woollen, a precaution which should never be omitted.

The same peculiarity of atmosphere, which produces such ill effects from exposure to the sun, may also be the occasion of a greater amount of exhaustion (not fatigue) under the exercise of walking, which I experienced more in going over this Island, than I had ever previously found, in the few other parts of India yet visited. A remedy for this feeling was always found by application to the contents of a haversack, and the precaution was always taken of not setting out on the day's journey without the regular meal. It is not altogether from personal experience in this particular, during so limited a time, that I would express the opinion, that bodily exercise of any sort in this climate, requires for its support, at least by the European constitution, a generous diet. In its corroboration, I was informed, that during the time of service, on this coast, of the 65th Regiment Native Infantry, a very fearful mortality took place among the Sepoys, not so much from the actual violence of the prevalent disease, the well known Arracan fever, as from the consequence of its debilitating nature, from which the constitution of the Native would not allow him to rally, though always assisted by liberality administering strengthening medicine and means; while to this mortality among the privates, a strong contrast was exhibited in the constant good health of all the officers, throughout the whole period of nearly two years, a contrast attributed by the medical, and other officers of the regiment to the difference of diet of the two parties. During the exposure to which the crew of the 'Childers' were necessarily subjected in the execution of a survey on the coast, many cases of the same fever occurred, at the present time amounting to upwards of 60 in number, but of the parties so suffering there were but few who were not perfectly recovered, and at duty again in 8 days, a circumstance which I incline to attribute mainly, not only to the usual liberal allowance supplied to Her Majesty's seamen, but also to the endeavours (fully appreciated) to supply the crew with as much, and as great changes of good food as were, under circumstances, procurable.

There must not be left out of view the great value of the facility of an immediate application, on first symptoms, to a medical adviser afforded in

a man-of-war. Nor again that of the precaution which the service provides under such circumstances, by the administering of wine and quinine to all likely to be exposed. This latter was found of great use, and is much to be recommended, while in regard to the other consideration it is right to notice, as tending to deprive this fever, of something of its formidable character, that in many cases, a simple dose of medicine, administered on first symptoms, has sufficed to drive it entirely away. One case only proved fatal, and with it were connected peculiar circumstances.

The climate during the period of the heavy rains is not an unhealthy one, it will be one necessarily of great confinement to the European, which is perhaps unfavourable, being inclined to attribute much value to personal exercise, but occupation by all who know its value, would not even at such time be found impracticable even for the body, much less for the mind.

The temperature during this season is cool, though the moisture of the atmosphere is very destructive to every thing but stone and metal. It is the time for the growth of the crops which we put into the ground just previous, and it is now that nature puts on her rich clothing of verdure; and vegetation is most rapid. It is accompanied by a constant breeze from the south-west. The natives enjoy this time as much as their Burmah brethren, and with their smallest children, like frogs, delight most in exposure to the heaviest falls.

Great importance as a preservative of health in this climate is to be attached to a very careful watch over the due performance of the digestive functions; both speaking from personal experience, and also by observation of our sick generally, it being found that inattention to this particular was not so much the occasion of dysenteric disease, as that it rendered the party liable to the prevailing fever, which was found to them a very intimate connexion with the state of the stomach, any derangement with the regular functions of which, if not a certain occasion, being at least a strong predisposing cause to taking the disease, and being found in all cases more than ordinarily its accompaniment.

My acquaintance with the climate of Chedooba is but small, and was limited to that of the best season of the year. I therefore would speak on the subject with every deference to the opinions of others of more practical knowledge, and extended experience. But as the result of what I have found and heard of it; I am strongly impressed with the opinion, that, employment for body and mind—to avoid direct exposure to the sun;—good (not intemperate) living; accommodation of clothing to

changes of temperature ; careful attention to the state of the stomach ; with due observation of these precautions, in aid of a sound constitution, the climate of Chedooba, would be found not only healthy, but at some seasons most delightful to the European.

The eastern parts do not enjoy so temperate a climate in the hot season as the western, being less exposed to the fresh sea breeze ; and the immediate neighbourhood of the creeks would be found situations prudently avoided. The fine pulverulent soil in the east, by the quantity and penetrating nature of the dust it creates, is also at that season a very great annoyance ; notwithstanding therefore the greater exposure during the monsoon, and that it is at present far less populous than the eastern. I consider the N. W. portion of the Island, as that which, at all seasons, would be found the most congenial to the European constitution.

While speaking of the climate of their Island, it is fair to notice its effect upon the natives themselves, as well as upon Europeans, and it was found that they also are subject, though but inconsiderably, to occasional attacks of the fever.

All the able-bodied men on the Island were employed with me on one occasion for a fortnight together, and therefore came under my direct notice, and though at hard work all day, and sleeping in the jungle at night, it came to my knowledge that fever had been taken by only one individual throughout that time, an old man verging on 80 years, and who ought not to have been present.

In traversing the Island throughout, I believe not to have omitted visiting any of its villages ; and whatever sick were in them, always made application for relief, either personally, or by their friends. These cases amounted in all to four of fever, one of small-pox, one of dropsy, one of paralysis, one of blindness, and one of deformed limb, three cases of fever occurred also with our Bengallee attendants. The native population therefore seemed to exhibit no signs of a pestilential climate. While on the contrary, throughout the Island, they afforded the clearest and most extensive evidence of its healthiness, and suitableness to their constitutions, in the great number of old men and women, to be found in every village.

As mere old age entitles to the respect and deference of the whole community, the old people, as elders and leaders, always come forth to meet us ; and with few exceptions even to the age of 106 years were found hale, if not vigorous in mind and body, much interesting information being gotten from parties 80 and 90 years old, with memories as fresh apparently, and minds as clear as they ever had been, men even of that age tak-

ing their share in almost hard work. Although this is a double testimony in its favor, it is as impossible, nevertheless to deny, as it is painful to acknowledge, that hitherto, these coasts have proved most fatal to Europeans, that sailors, soldiers, and civilians, have alike fallen victims to its fever, and on Chedooba an ample share; nor may there be a doubt thrown on the attention and ability of those medical officers whose exertions have yet hitherto failed in all attempts to stop its fatal progress. Whether therefore this country is one from which the European is to be ever thus excluded, or whether in the progress of all other improvements, and also if the character of his treatment by himself or by others may be found hereafter to enable him to make here also his temporary home, and introduce, with his wealth, his intelligence, his energy, and above all his religion, their attendant blessings, must apparently be left for the future to shew. But giving to the facts, which constitute this favorable evidence, no more than the weight, they are strictly entitled to—and others may be found perhaps to entertain with me, even more than the hope, that some such improvement may eventually render the climate of Chedooba, and also that of Arracan, no longer so fatal a bar as hitherto, to the advance in these provinces of the Civilization of Europe.

(To be continued.)

Memoranda on the 'Chulchulheera' of the Hills, and on some Lichens from the Himalayas in the Collection of the Asiatic Society.

By HENRY PIDDINGTON, *Offg. Curator, Mus. Asiatic Society.*

My attention having been directed to this subject by our President, I took the opportunity, when examining the 'Chulchulheera,' to test also some lichens sent to the Asiatic Society from Simlah, in 1838, by Mrs. Siddons, which I found in the Museum. I have thought it worth while to make known the results of my work, and to add a few remarks which have occurred to me, in the hope of drawing attention to this very interesting though neglected subject.

I subjected the 'Chulchulheera' to the common ammoniacal test, and found that it yielded a tolerably bright red brown liquid, though not the violet red described by Hellot; I did not succeed in producing any substantive dye with it, though using several mordants, I essayed to manufacture some kind of Cudbear from it also, but did not succeed. The preparation of Cudbear however depends upon two

fermenting processes, the first of which is the preparation of fermented urine, and then a sort of fermentation of the lichen with the prepared urine and lime. I am very doubtful whether, at the temperature usually prevailing here, we can obtain the fermented urine at all, in the state in which it is used in Europe, from its passing so rapidly to the incipient putrid state. It may moreover be doubted whether the heat is not also too great for the fermentation of the lichen. Hence, and because all fermentative processes depend so much on heat, and often on the quantity of material used, nothing can be predicted of this failure.

Lichens from the Himalaya.

These are, as above stated, a box sent down by Mrs. Siddons in 1838. I have arranged herewith a box of specimens of them, and one of bottles of the liquids produced. I subjoin a note of the colours as they appear when fresh, and I have marked their differences when seen by transmitted or by reflected light, for this appears worth noticing. To be seen properly they must be examined in a bright sunshine. I observe that some of the colours change a little, or become duller, in a few days.

<i>Nos.</i>	<i>By transmitted Light.</i>	<i>By reflected Light.</i>
1.	Crimson red.....	Lighted and duller.
2.	Rich bright Crimson.....	Deeper but very brilliant.
3.	Thin, poor, white-wine colour .	The same.
4.	Deep maroon brown	A fine clove, or red brown.
5.	Dull red	The same.
6.	Very rich port-wine red.....	The same.
7.	Bright white-wine colour, but thin.....	} Duller.
8.	Crimson brown	
9.	Orange crimson	The same.
10.	Crimson	Crimson brown.
11.	Deep crimson.....	Brown.
12.	Deep crimson	Bright red.
13, 14, 15; much like No. 7, but I had but very small quantities to use for testing :—		
16.	A poor dirty orange brown....	The same.
17.	A brilliant crimson.....	The same.
18.	A golden brown	Clove brown.

I should think, from the richness and intensity of the colours, that most of these, excepting perhaps, Nos. 3, 7, 5, 13, 14, 15 and 16 are worth attention; and it should not be forgotten that they have been certainly

three, and perhaps four years since they were collected. I proceed now to set down such remarks as occur to me.

There must be in all countries a season at which lichens and mosses, like all other vegetable productions, possess the largest quantities of colouring matter. At what time this occurs for Indian lichens, we at present know not: for those of the Himalayas' it is probably the autumn, and in other parts the driest seasons.

Judging from the under surfaces, some of these which I have tested are tree, and others rock-lichens; but there must be great numbers more of both kinds in those extensive regions. The rock lichens of cold countries are usually the best, as far as our knowledge yet goes.

We know nothing hitherto of the forest-mosses and lichens of the vast jungles of India, from Assam to Goandwana, and from the Terai of Nepaul to the Sunderbunds, the forests of the Southern Ghats, and those of Ceylon, Arracan, and Tenasserim! It is true that it is, as yet, supposed that the lichens of hot and humid climates are little productive of colouring matters; but I know not on what this notion is founded. There would seem to be as many probabilities the other way.

And when all the lichens, above alluded to, are examined, we have other vast fields and these of great promise. I mean the great volcanic plateau of Central India, from the basaltic rocks of Bundelcund to the Toombuddra; the points where, as at Vizagapatam and Cape Comorin, the granite meets the sea; those where, as in some parts of Malabar, the trap rocks from the coast; and the whole of the range of coast and islands, of every formation, which form the eastern shores of the Bay. We may in fact, from the infinitely varied condition of climate, rock, and soil, which I can only hint at here, except every possible variety of moss and lichen; and that many of these must be new and valuable.

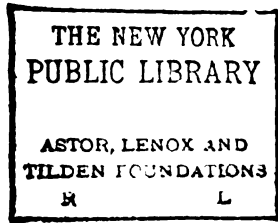
Provided a lichen yields a strong and bright colour, we may always hope that it may be turned to account. It will be noted, that all these, which I have now examined, give colours which lie on the yellow side of the red, and not on the blue side of it, which would produce the violets. I mention this, because there seems a notion abroad, that only those which yield at once the violet-reds to the ammoniacal test are of any value. In the instructions for Capt. Beechey, on his voyage to the Straits of Magellan, this is indeed pretty nearly said in direct words. Now we know that, from Lapland to the Mediterranean, the rocks of Europe have been pretty nearly stripped of their lichens, by agents sent out from the great silk and cotton-printing establishments, for much of the work of which the rich Canary lichens are unsuitable, and far too dear. We may

hope to find some equal to, or indential with these, but we may be well content with the goodly supply of the secondary sorts, with our great extent of territory must insure us when they are known. In no trade is there so much competition and so many secrets as in the dying and printing of silks and cottons; and I take it that none of the published notices give any distinct idea of any thing, as to the value and kinds of lichens, beyond what is already well known in the business: the secrets are far too valuable to be given away. The colouring principle moreover is not the only part of the lichens to be turned to account, gummy matter, extracted from them by Lord Dundonald's process, supplies the place of the costly gums in many printing processes.

There is an omission in all the printed notices which I have yet seen, which in many cases might mislead persons testing lichens. An important process—that of crushing or even pounding the moss or lichen to powder—is wholly omitted? A chemist would of course think of this; and Hellot, the inventor of the ammoniacal test, from whose writings all have subsequently copied, mentions it; but the usual directions lead people to suppose that the lichen is merely to be broken to pieces and infused, which may often be insufficient to develope the colour properly, and thus lead to a wrong conclusion.

The single lichen *Rocella* has been a mine of wealth to the Canaries and Cape de Verd islands. We have at least a fair chance that India may produce one, if not more, of these productions of a valuable kind, but nothing can be properly ascertained on the subject unless a considerable quantity—say a maund or two of each promising sort—be sent home. In the hands of European dyers and chemists, with their extensive resources, great experience, and ample leisure, it is quite possible that results may be obtained, which, our petty means, and want of experience and leisure, are quite unequal to develope. I have, for example, strong reason to believe that some of these lichens contain the 'Erythrine,' or violet-red principle of Heeren and Nees Von Esenbeck; but the research is one of those in speculative chemistry, which I have neither means nor time to undertake. I shall nevertheless be happy at all times to contribute my mite of aid, whenever it can be useful in the search for good dying lichens.

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Hal
Found
no 3.

On the Topes of Darounta, and Caves of Bahrabad.—BY THE LATE
LIEUT. PIGOU, (*Engineers.*)

At a distance of six miles from Jullalabad in an easterly direction is situated the village of Darounta, at the foot of the Koh-i-Surruk on the right bank of the Jullalabad river; scattered through the village, and in its environs are eleven topes, of various sizes, but all much smaller than the tope of Manikyala: on some of these are evidences of their having once borne external ornaments similar to those found on that tope; they are built of stone and slate, cemented with mortar, and in some cases merely with mud; all of them possess a chamber from 4 to 8 feet square, and some of them have in addition a shaft running down the centre; at the time of my visiting them, six of the largest had already been opened by Messrs. Masson and Honigberger; in opening the others, the method pursued was, to cut, as it were, a slice from the lip to the bottom, reaching to the centre by this means both the central shaft, and the chamber at the bottom were laid open; out of the four thus opened, one was empty, the contents of the other three were as follows:

Box No. 1, was taken from the Tope-i-kutchera; it was found in a chamber about six feet below the level of the ground; it was contained in a rough case made of four slates (about a foot square) stuck together with clay; these fell aside on being 'touched'. Within the box were the three coins, and a peice of rock crystal; the coins belong (2) to Ermaeus III. (?) and one to Azos,

Box No. 2, was found in the Tope-i-fasl, it contained a small gold box, in which were placed several pearls, with holes drilled through the centre, and some small peices of what appeared to be bone; the gold box with its contents has been stolen from me.

Box No. 3, was found in the Tope-i-Hosen-amanat, covered in a manner similar to Box No. 1, it contained a mixture of light red earth, and grey ashes, and three coins, all of Azos.

There can be little doubt but that these topes were built in memory of the illustrious dead; without reasoning from analogy founded on the statements of a late traveller in the Crimea, regarding the sepulchral tumuli discovered in the vicinity of the ancient Panticapeum, the metropolis of the famous Mithridates Eupator, the evidence furnished by the relics found in the topes, would irresistibly lead to such a conclusion; with regard to the æra when these topes were constructed, it is more diffi-

cult to give a rational conjecture, but it is at least worthy of remark, that more of the coins formed in them, are of later date than the Bactrian kings.

Opposite to the village of Darounta, and overhanging the left bank of the Jullalabad river, are the caves of Bahrabad ;—these have been excavated on the plan of a town, but on a smaller scale, there is a charson or meeting of four roads ; that running to the north is the longest, and from it, five chambers open, these receive light from apertures immediately overhanging the river, which runs about 100 feet below them ; the passage running to the south leads to a Dallán or Hall, which also opens over the river, the passage to the west leads to the river, while that to the east is the general instance to the whole plan. The chambers are all lofty, airy, and well lighted, but the passages are very low and narrow. The cave mentioned by Honigberger as the Fil-khana, is a little to the east, and separated from the principal set of caves. The only antiquity discovered in them, was a small slab of rough reddish marble, about 5 inches square ; on this slab was executed in demi-relievo, a pair of human feet, the toes, &c. being all distinctly marked ; round the feet, are four Lotuses, one at each angle of the slab executed in bas-relievo. It is said that similar slabs have been found in Ceylon, if so, a presumption may be drawn, that if the caves of Bahrabad do not owe their origin to the Buddhists, they were at least at one time inhabited by them.

R. P.

NOTE.—The objects given in the annexed plate were presented to the Asiatic Society, with the above memoir by the late Lt. Pigou of the Engineers, through our late V. P. Col. Macleod, in his letter to whom Lt. Pigou writes as follows of the gold box (unfortunately lost,) which was the most valuable in all respects of the remains discovered at Darounta.

‘ I have the pleasure herewith to forward two boxes, and some coins taken from the Jullalabad topes ; the three boxes, I had previously promised to Dr. Athinem to whom it is now made over, it was similar in shape to the box No. 1, but not quite so large. I regret that the small gold box, with its contents, has been stolen, as it was the greatest curiosity of all, but the precious metal excited the cupidity of my servants, who have made away with it. The marble slab is too heavy to send down by dák, and I have not got it with me ; indeed I am not sure that it has not been lost, but it is possible that it may have been left in my hut at Jullalabad. I also send you a rough sketch of the Bahrabad caves, which will give

an idea of the place, I am sorry I have not time to make a more elaborate drawing, but must forward it rough, just as it was sketched."

*The death of the writer of the above, by the premature explosion of a fuse, which he had with equal coolness, and gallantry laid to the gate of a fort in the Bajowur territory, during the recent employment there of Col. Shelton's brigade, has destroyed all hope of the recovery of even the slab. The presence on it, however, of the most unequivocal of Boodhist emblems, obviates all doubt as to the nature of the caves, were there not ample reason for coming to the same conclusion on other grounds. I alluded (*As. Soc. Journ.* No. 109, p. 97) to the Darounta and Bahrabad discoveries, with reference to those recently made at Kanari by Dr. Bird; the caves of Kanari we know, from the most authentic sources (*Travels of the "Chinese Boodhist Priest Ea—Hian."* A. D. 399. M. Remusat's Translation) to have been a favorite place of Boodhist pilgrimage; the Boodhist character of those at Bahrabad, is proved by the presence in them of emblem peculiar to *Boodh*; the topes at Kanari yield an inscribed plate which records the dedication of the place 'in honor of the most powerful, very wise, and superior *Bhagavana Sakya Muni*,' while 'copper urns, a ruby, a pearl, small pieces of gold, and a small gold box, a silver box, and some ashes' were also found there: at Bahrabad no inscription is discovered, but 'the copper coins, and the rock crystal' (types of the wealth of a poorer people) the 'small gold box in which were placed several pearls with holes drilled through the centre, and some small pieces of what appeared to be bone,' all go to prove that the races, which at points so far apart, have left these traces of their usages, and their religion were equally Boodhist, although the constructors of the Darounta tope would appear to be the ruder, and less wealthy of the two. They are able it is true to deposit gold, but more sparingly; ruby is replaced by common crystal; a stone vase, is used in place of the copper urn, and copper coins supply the bullion of the Kanari tope. The mausolea are evidently those of persons of inferior means, although in the character, and nature of the deposits, we trace an intimate connection with the more gorgeous relics of Manikyala. Mr. Piddington has obliged me, with the following notice of the Darounta vases, and their contents.

'Both the vases are turned out of a fine-grained potstone, and have the marks of the tool (particularly inside) as fresh upon them as if

* Three of my correspondents and contributors in Affghanistan, and among them, not the least valued, Captain E. Conolly, P. B., Lord and Lt. Pigou, were killed in action within the short space of 8 months.

made yesterday ! The larger one has, beneath its foot, the oblong mortise by which it was secured on the lathe. Their dimensions are as follows :

	Height, Inches.	Greatest ex- terior dia- meter, Ins.	Thickness, about Ins.
No. 1, Large Vase.....	3·0	3·2	0·4
Small Vase.....	0·9	1·45	0·2

The state of the coins is curious : three of them, Nos. 4, 5, and 6 of the drawing, are completely encrusted with crystallised carbonate of copper, with a few detached scales of a whitish oxide, which may be owing to an arsenical or zinc alloy in the copper ? or, to carbonate of lime having penetrated to the coins ? though this last seems nearly impossible ; they are in very minute quantity, and it would not be worth while to disfigure the relics by picking any off for examination.

The remaining three coins Nos. 1, 2, 3, are marked as having been ‘ found in the box,’ and they look so clean that we are inclined to suppose they have been really cleaned ; especially, as the metal is much eaten and worn. No. 2, has still traces of the carbonate of copper on its face. No. 3, is the only one which we can suspect of having undergone the action of fire. but the boxes bear no trace of this, and I am inclined to think, that they have not been subjected to it. The rock-crystal ornament requires no particular remark,—beyond, I may add, the peculiar trouble, which has been taken in perforating it ; it resembles exactly in size, form, and mode of perforation, the uncut emerald, now universally worn, by native chiefs and gentlemen of rank appended like a drop to the *surpéch*, or head jewel. The people who could have bestowed so much labour upon so common an object, must have been singularly ignorant of the more precious stones, and I might point to this slight index, as affording some proof that the deposit at Darounta, was made by the first leaders of a new race of conquerors, who subsequently left monuments of their rule, then a more polished, and a wealthier people, in the noble works at Manikyala. There too (*As. Soc. Jour.*, vol. III. p. 563) we see, as on a smaller scale at Kanari, the practice of placing inscriptions in the tope obtained, showing perhaps the progress of science in conjunction with that of wealth.

An examination of the coins before us will lead to the ascertainment, with tolerable accuracy, of the date at which the Darounta Topes were constructed. The coins are, No. 1 of Azes : No. 2 is similar to No. 12 (*As. Soc. Jour.* Vol. III. Pl. XXXIII.) of those found in the Manikyalan

Tope by Mons. Court, in so far at least as the figure and attitude of Hercules is concerned ; the head on the obverse of the coin is too indistinct to admit of very accurate identification, but I am convinced that the two are similar ; Mr. James Prinsep remarked on the difference obtaining between this coin, and the rest of those found with it at Manikyala, and (As. Soc. Jour. Vol. VII. p. 646) he afterwards observes of this coin ; 'on the reverse of the coins of the second Hermaios (or perhaps the third) having a Hercules for the reverse, commences another series of native names following what we have designated the Kadphises, or Kadaphes Group.' It is in fact a coin of Kadaphes, who invading, and subduing the country of the last Hermaios, adopted in part, according to the wont of the barbarians, the effigy of his coins, affording a strong contrast in its classicality, when placed, as at Manikyala, in juxtaposition with the peculiar coinage of the Kadphesis and Kanerkis, by whom the types of Grecian domination were foregone. The presence at Darounta of this coin, (or coins, for No. 3 seems to be a duplicate though indistinct) with those of Azes, goes directly to support the truth of Professor Lassen's Chronological Deductions as respects that King, and his immediate predecessor. 'The coins of Azes,' he observes, 'are so closely connected with Greek types, that he must undoubtedly be a proximate successor of the Greek Kings, * * * * * : he must be considered as a cotemporary of Hermaios.' (Lassen on Bactrian History, As. Soc. Jour. Vol. IX. p. 662.) But Mr. James Prinsep connects Kadaphes with Hermaios ; when therefore we find their coins together, as in the instance now before us, the advent of the Sacas under Kadaphes, to the destruction of the remains Græco-Bactrian power, and the succession of Azes shortly afterwards, (who founded the great empire of that people) may the more readily be admitted. Professor Lassen gives the following dates, about which we may assign the period of the construction of the Darounta Tope.

The Græcian Empire of Hermaios subdued by Kadaphes about	120 B. C.
Great Empire of the Sacas, under Azes about.....	116 B. C.
Azilises succeeds him about.....	90 B. C.

I need hardly add that to *Kadphises* (a Parthian) Professor Lassen assigns a reign about 100. A. D. subsequent to the expulsion by Vikramaditya of Malwa of the Sacas, from the countries along the Indus, A. D. 56, and a re-invasion of the land by new hordes of conquerors.

The coin No. 4 is so much disfigured by oxidation, that the artist, who, in the plate before us, tried for the first time the difficult task of delineating on paper the semi-defaced design of a coin utterly new to him, has

been a little misled. It is simply, like Nos. 5 and 6, the ordinary mounted horseman with outstretched arm to the left, and fillets depending from the head. The only coin in tolerable preservation is No. 1.



Report on Productions and Manufactures in the district of Hunumkoondah, in the dominion of H. H. the Nizam of Hyderabad. BY A. M. WALKER ESQ. M. D., Assistant Surgeon. Communicated from the Political Secretariat, Government of India.

On the 12th instant, I had the honor of reporting my arrival at Hunumkoondah, since that time I have been employed in observing and noting the most important facts in reference to the object for which I am employed, and particularly in making inquiries respecting the production and manufactures in this part of the Nizam's dominions. As far as I could, I have trusted little to mere oral information, but have endeavoured to authenticate by actual observation, whatever appeared to me interesting or useful in nature or in art.

The face of the country in this neighbourhood presents a striking similarity to that in the vicinity of Hyderabad. Here are the same rounded, dark colored, herbless eminences, solitary, or in groups of considerable range, rising to the height of three or four hundred feet with the same ruinous appearance of the lower hills, and the fantastic piling of one boulder of rock on another.

The tank, with its mound of earth or masonry and the sheet of verdure which it nourishes and maintains, serve to complete the resemblance of general form and outline, nor does a more minute examination detect many discrepancies. The surface rock, throughout, is granite, usually of a greyish colour, but varying from a dingey white to a reddish and more rarely to a blackish hue, according to the colour and predominance of each of its constituent parts, quartz, felspar and hornblende. Where quartz is prevalent, the rock is close grained and compact, with little tendency to wear, while on the other hand the most superficial examination will shew that the excess of the two last, and more particularly of the felspar, is the certain cause of decay.

In one locality in the village of Nagwazum, five miles to the north of this, so abundant is the hornblende and felspar, to the exclusion of quartz in several specimens of the rocks, that they might be called sienitic

greenstone. I have nowhere seen mica take the place of the hornblende, hence the whole formation might be more properly termed sienitic than granite, particularly if the latter term is to be restricted to a determinate compound. Sienitic granite, however, a compromise between the two, would appear the better and most intelligible term for the rock as it exists here.

In a spur of hills running north south near the vilage, of Erapully ten miles to the west of Hunumkoondah, I remarked that the granite becomes stratified or in other words passes into gneiss.

At the foot of these hills the iron ore, afterwards to be described, is found.

I have not met with lime-stone yet, but from its being very commonly employed by the natives, I should suppose that it existed in considerable quantity. From their account it would appear to form nests in the granite; the soil is of four descriptions, first the Chilka, a red gritty soil little fitted, from the coarseness of its particles, for the purpose of agriculture.

2nd. Lalzumeen, a soil also of a reddish hue, and evidently the former in a more comminuted state; this is put beyond doubt by the ant hills formed on the Chilka soil being composed of this earth.

We thus see that these insects, usually looked on as troublesome and destructive pests, are not without their use in a grand natural operation. The peculiar acid, the formic, which is their chief agent, acts on the alkali and lime and most probably on the silica of the rockdebris, pulverizing it, and facilitating in all probability fresh combinations; the soil when manured is fitted for the reception of all kinds of crops without reference to season.

3rd. The Regur soil. As far as I have yet observed, this soil is of less frequent occurrence than the two last mentioned; as elsewhere it is particularly adapted for cotton cultivation, and is generally esteemed the richest of soils. It requires little or no manure: yet the ryots are in the habit, previous to cropping, to let sheep loose upon it, it being supposed that their urine is very advantageous to its fertility: this is exceedingly probable as the salts which the urine contains, and the compounds they form, must be very efficacious in loosening the soil, and preventing the formation of clods, the common drawback of argillaceous soils.

4th. The Talao-ka-jumeen. The black soil found in the bottom of tanks. This is little esteemed, being a stiff clay, little permeable by moisture; it abounds in fresh water shells and at the beginning of the dry season, its surface is incrustated with carbonate of soda, of which mineral large quantities are collected for soap making. A property, common to all

these soils. is, that they effervesce with acids, thereby indicating the presence of carbonate of lime.

As far as our geological knowledge can lead us, the presumption is, that these soils in all their varieties are nothing more than the decomposed sienitic rock, and considering the number of simple bodies, of which this is composed, viz. Oxygen, Silica, Aluminium, Calcium, Potassium, Sodium Iron, and perhaps Manganese, and the ever varying proportions of its more immediate ingredients, we cannot wonder at, although we may fail to explain their striking diversity. Our notions of what may be termed the chemistry of nature are yet very vague and unsatisfactory, for an appeal to the crucible, electrophorus, and the whole machinery and reagents of the laboratory, has not always been successful in elucidating natural phenomena strictly chemical. Let us rest on the negative evidence of the impossibility of discovering, with our present lights, any other source for these soils than the rocks subjacent or in their vicinity, until strong proofs be afforded of their origin elsewhere. We cannot class among these the opinion, well nigh become an axiom with certain Indian naturalists, that the Regur, soil is always due to the disintegration of basalt; as for this purpose we must bring the Kishna or Godavery over heights and ravines, that existed periods of time anterior to a secondary trap rock being thrown up.

When the ground is left uncultivated, even for the short space of a year or two, it never fails to be covered with a low jungle, composed chiefly of the *Cassia auriculata* and *Zizyphus microphylla*, the former plant is hardy and luxuriant, and is in every respect the peculiar enemy of the cultivator, who certainly does not take the most effectual means to rid his fields of it, contenting himself with burning it or cutting it down to the level of the soil instead of rooting it up. Of the jungle trees by far the most common is the *Butea frondosa*, now in full blossom, which with the *Bombax heptaphyllum*, and the *Erythrina Indica* stand out as the most garish of the forest trees. The *Garuga pinnata*, *Hyperanthera Moringa*, *Cassia fistula*, *Annona reticulata*, *Melia Azadirachta*, *Bauhinia parviflora*, *Capparis trifoliata*, *Ficus Indica*, *Ficus religiosa*, *Bombax gossipinum*, a species with yellow flowers, *Feronia Elephantum*, with four or five species of *Acacia* make up the list of the more common jungle trees. The *Borassus flabelliformis*, (the Palengra tree) is every where seen, which with the *Phoenix sylvestris*, also common, yields in great abundance the well known Toddy. Of the common jungle creepers two or three species of *Asclepias*, and *Capparis*, and the *Combretum rotundifolium*, are at this season, the most conspicuous.

The Mango and Tamarind trees are common about villages.

The grain chiefly cultivated is rice, of which no fewer than eight varieties are sown. Of these the *beetes wadroo* is the most cultivated, being both a rain and a dry weather crop, it is a middle sized grain with a husk of a light brown colour; two of the other kinds are much smaller grains with white husks, the other five differ in size, colour of husks, &c.

Little of the rice raised is consumed by the inhabitants, but sent to Hyderabad forming the principal export; in the districts its consumption is limited to the richer Mahomedans, Hindoo Zemindars, Brahmins, &c.; the poorer classes chiefly derive their subsistence from the rain or *punass* crops.

The principal *punass* or khureef crops, are as follows:—of grains, Andropogon Sorghum (two varieties of jooarry, red and white; the first only properly a punass crop, Andropogon Sacharatum), Bajree, Paspalum scrobiculatum; Triticum wheat, a red sort sparingly cultivated; Panicum Italicum, Italian millet; Cynosurus Corocanus (Raggy), and Zea-Mays. Of oil plants, Sesamum orientale, black and white, Ricinus communis, two kinds.

Of Legumes, Dolichos Lablab, Dolichos gladiatus, Dolichos fabæformis, Phaseolus mungo, Hibiscus cannabinus (Umbarah), a hemp plant, (leaves used by the natives as greens) and a variety of cotton called Salkapas. The rubbee crop consists of white jowarree, Cicer arietinum, Phaseolus mungo (a black variety), Crotonaria juncea (the sunn plant), and cotton, sugar, and paun. Piper betel is also cultivated to a limited extent, and also tobacco of an inferior quality. It is remarked that tobacco irrigated from a well of brackish water is superior in flavor to that irrigated from sweet water.

This can be easily understood, as a common means with fraudulent tobaccoenists of heightening the flavor of their tobacco is by dipping it in a saline solution. The garden produce consists of red pepper, brinjala, onions, garlic, carrots, radish, sweet potatoes, dill, coriander and bishop's-weed seeds, mustard seed for oil, fenugreek and some speices of amaranthus for greens, they use also the flowers of the aeschynomone grandiflora as a potherb.

Melons, cucumbers, and gourds, as in other parts of India, form a considerable article of diet, particularly in the dry season.

The village cattle are small, and at this season of the year far from well flavoured, but is said that a stout breed of bullocks is not to be met

with in the neighbourhood. Flocks of sheep, black and white, are every where seen.

The breed of horses, small, ill-shaped ponies, is very indifferent.

Wool meets a ready market in the districts being brought up for the carpet weaving of Warungal, and the manufacture of Kumlees; a small quantity is sent to Chandah in the Nagpore territory, its price at present is nine seers (the seer of 82 Halle Siccas) a rupee, white wool is 25 per cent. more valuable than black.

Hides were formerly exported, their price varies from twelve annas to (2) two rupees each. The ceasing of the export of hides within the last few years, is a favourable index of the extension of agriculture, as leather is employed in a certain quantity in almost every implement of farming.

The iron ore is found at the foot of a range of hills running N. and S. about ten miles to the west of Hunumkoonda.

It exists in the form of fragments, often of a rhomboidal shape imbedded in a red clay, and accompanied by pieces of gueiss and quartz. It is evident that the neighbouring hill is the source from whence it is derived, and I have little doubt that a skilful miner with some trouble (for the gueiss hill, unlike the granite, is clad with a pretty deep alluvion) might come upon the original bed of ore, of which these are mere detached portions; as it is, the demand for metal is sufficiently met by collecting and smelting these fragments. It is said that the Iron tract occupies a space of ten begahs, the greater part of which is covered by a woody jungle. The shafts are of various depths from 10 to 30 feet; into these the miner descends, and detaches by means of a small pickaxe whatever mineral he meets with from the red clay containing them, he determines by their weight whether they contain ore or not, and thus fills his basket. He can gather during the day six or eight small baskets full, one hundred and twenty of which are sold to the smelter for a rupee. The ore is reduced in the adjacent villages in the usual rude way so well known. It occupies six men for two days to turn out a maund (12 seers) of metal.

The Iron is brought up by Bunyas, for exportation, for R. 1½ a maund, and is sold to other customers for two or three annas more. The ore is of that kind usually called magnetic iron ore, and black iron ore being a compound of protoxide and peroxide of iron; it possesses the magnetic power but slightly. I have made a number of trials, and have found no specimen with magnetism enough to pick up a small needle. The circumstance too of the cutlers here having in their possession pieces of magnetic iron ore, as heir looms and talismans, sufficiently prove that this

virtue in a high degree must be rare indeed. The Sp. gr. ranges from 4.3 to 4.8, which would give nearly an average of 4.5. From this I am inclined to think, that malgre the deficiency of attractive power, the ore is a tolerable rich one; I may add that of all iron ores the black is the richest; by possessing it Sweden is still able to surpass great Britain in the manufacture of the metal.

Besides the *morinda citrifolia* the wool dye, which is cultivated on the regur soil, the *Oldenlandia umbellata* (Cherwell or chay root) grows wild here in great plenty. A man and his wife can easily gather forty bundles in a day, which they sell to the dyer for 4 annas; it is employed to dye cotton of a red and orange colour. The *Oldenlandia* is cultivated on the Coromandel Coast. It is very probable that the dying properties of the wild, excel that of the cultivated, for dyes often follow the same law which renders the smell and taste of the wild plant, growing in a state of nature, stronger than those carefully attended.

The dying process is very tedious, occupying forty days and upwards. Five or six pieces of *Indigofera* are met with here, but one species only, the *Indigofera cœrulea*, is used for the preparation of Indigo. It is collected in the rains when the dye is commonly made, the method of preparing which is sufficiently simple. A strong decoction is made of the plant, leaves, flowers, pods and twigs, being all indiscriminately thrust into a gurrah; when this is hot an infusion of *Eugenia jambolana* (rose apple tree) the indigo is immediately precipitated and the superincumbent water being drawn off, is dried in the sun.

The native plan of mounting the indigo vat merits attention: a potash ley is prepared from the ashes of the *Euphorbia Tirucalli* (milk bush hedge) and lime ley, mixing them together and then filtering. In this ley seeds of the *Trigonella fanum-grecum* and *Cassia Tora* are boiled, and the liquor being strained, is poured into the water drawn off, after the precipitation of the Indigo, and the Indigo itself is then put in and some more potash ley is added.

In three or four hours the fermentation is perfected, and the vat fitted for the purposes of the dyer. The theory of this vat is very obvious, extractive matter derived from the liquor in which the Indigo was first boiled, with the sugar, starch, and mucilage, of the two leguminous seeds, cause a fermentation by which the Indigo is rendered soluble in the alkaline solution.

The process is more simple than that usually followed by dyers in Europe, and is in perfect accordance with every rule of practical chemis-

try. There is no superfluity, and no waste; and on the whole it is a most favorable specimen of native ingenuity and skill.

Indigo from Masulipatam, the produce of Bengal, finds its way to this place, and is sold for the same price as the Indigo manufactured here.

The carpet manufacture for which Warungal or rather the villages, Muswarrah, &c., in its close vicinity are celebrated, does not appear to be an indigenous art.

A distinct tradition exists of its introduction, and also the method of preparing and drying the materials that compose it, being due to the Mahometans, facts countenanced, if not substantiated, by the present weavers and dyers being uniformly of that religious persuasion.

The carpet loom is nothing more than the common native loom placed vertically instead of horizontally. The waft is of thick strong cotton twist, being arranged by no wafting mill, but by one of the workmen going round and round two stakes fixed in the ground and dropping the thread at each, as he passes; in the loom it is kept on the stretch by two strong billets of wood, the threads being approached by separate loops of cotton fixed to a bamboo, which is elevated or depressed at the will of the weaver. The worsted is held in the left hand, and a crescent shaped knife in the right, the fingers of both being left free; the inner thread of the waft is then seized, the worsted wound round the outer, crossed on itself, and the extremity drawn out, by which it is made to descend in the form of an open figure of eight to be snipped by the curved knife. It is superfluous to say that this is the work of an instant; when the pattern is new or difficult, the order and position of the worsted threads is changed by a coryphoeus in a kind of rhyme. On a row being completed, the warp, in the shape of a cotton thread dyed dark brown by the bark of the *Swietenia Febrifuga*, is forced down by means of an iron toothed comb, in form something like an adze; the whole is completed by cutting the worsted to its proper length by a large scissors held steadily against the waft. It would rejoice a Manchester or Glasgow manufacturer to learn that infant labour is employed and preferred in Warungal carpet weaving, it being averred that their more limber finger joints are best fitted for the finer parts of the work, but cupidity all over the world is ingenious in finding excuses, and is ever ready to confound the expedient with the right. Dried springs of *Toolsee* (*ocymum sanctum*) and bunches of *Lepidigathis Indica* are attached to the loom frames; the workmen say that they make their labour go on more cleverly. Twelve different worsteds are employed.

The blue is produced from Indigo, the yellow, the sulphur yellow, from boiling the sulphur yellow in water impregnated with carbonate of soda, in which a little turmeric has been mixed, the deepest yellow is produced by dipping the same in potash ley. The reds are all produced by lac dye dissolved by tamarind juice, with sulphate of alumina and potash as a mordant. The depth of colour depends in 3 cases upon the original black, brown, or white colour of the wool; in the fourth on the length of time the last description of wool was allowed to remain in the dye. The greens are produced by immersion in Indigo, and then in polas or turmeric, their degrees also depend on the original colour of the wool. Bengal Indigo is always preferred to the home-manufactured by the worsted dyers, cotton carpeting is also prepared in the same way as the woollen.

The carpet weavers are described as given up to indolence and dissipation, to both of which they appeared on a late occasion most anxious to minister by endeavouring to establish a monopoly. There are at present two hundred looms working; at the village of Hoosun-purti, five miles from this, a good many looms are employed in weaving tusser or jungle silk. As this letter is already too long I shall defer till another occasion the description of this manufacture, and the rearing of the insects producing the raw material. I cannot conclude this without mentioning an import to this place, viz. English cotton yarn, of an orange colour, which comes from Masulipatam to be used by the cotton weavers in the borders of saries, punchees, &c.; the reason they assign for its employment is the quick fading of their native yellows; in all probability the English thread is dyed with fustic wood (*Morus Tinctoria*) the most lasting of yellow dyes. Be this as it may, its use bodes ought but good to the Indian manufacturer.

Roree in Khyrpoor; its Population and Manufactures.—By
CAPTAIN G.E. WESTMACOTT, 37th Regiment, Bengal N. I.

Roree or more correctly Lohuree, the ancient Lohurkot, is a town of considerable antiquity, and said to have been founded with Bukur, about the middle of the 7th century of the Hejira. It is built on a steep limestone ridge that sweeps in a crescent form along the east bank of the Indus. The strata of the rock is horizontal, and exhibits marks everywhere of the the action of the river, which must have risen formerly at least fifty feet above its present level in the season of floods, and washed the foundation of the houses. In the sandy bays, creeks, and hollows aban-

done by the stream, date and peepul trees grow luxuriantly, and rocks worn by the water, and shattered and broken into gigantic masses, were submerged at no very remote period. Along the base of the hills, on both banks of the river, the land bears the appearance of having been under water. The remains of a stone and brick wall, or quarry, built evidently to oppose the encroachments of the river, runs along the edge of the precipitous ridge which supports the town, and under it is an extensive cavern. Clay buttresses shore up the houses, which rise to four and five stories, and being composed of frail materials and badly built, threaten momentarily to topple over into the great road leading to the watering place, which is usually thronged with people.

The inhabitants affirm that the periodical rains have failed the last twenty years, and that the river rises less annually. An old Bunneah pointed to a spot, which he recollects to have seen covered by the river, and is now removed at least six feet above its level in the floods. To this cause partly, the people attribute the decline of the prosperity of Sind, and the extortions of the Talpoor Beloochees and the large expense incurred in digging canals and cuts for irrigation, swallow up the entire produce of their industry.

The Bunneah remembers upwards of fifty houses in Roree, being washed down about twenty years since by rain, and I can easily fancy the havoc a storm would make among the frail and ruined tenements in the town. The Indus rose, within his recollection, ten or twelve feet higher than it does now; for the last four years scarcely any rain has fallen, and grain has become progressively dearer, but there was a plentiful supply in 1839, compared with the quantity that fell in the preceding seasons.

The lime ridge behind Roree is without a blade of vegetation, it swells into peaks and eminences, and stretches several miles inland, and along the river, to the south. Some of the hills are isolated,—and intersected by little valleys, and some are capped by tombs, shrines, and other buildings in ruins. These parched and arid hills are in powerful contrast with the deep verdure of date groves and *bajree* fields that are scattered in rich luxuriance over the low grounds towards the capital of the principality. The *ledgah* of Roree is about five hundred feet above the river, and few spots in the Eastern world surpass the view from it in beauty, and present a greater variety of objects. In front of the spectator are two picturesque little islands; the one covered with date palms, the other with tombs and mausolea, shooting up into innumerable pointed spires of glazed porcelain. The fort of Bukur, beyond it, embraces a

vast oval rock in the midst of the Indus, and exhibits on this face twenty-three bastions of different forms resting on the edge of the stream; and date and peepul trees spring from the naked rock, and fix their roots in the foundation of the embattled curtain. On an elevated citadel in the middle of Bukur, floats the small blood-red flag of the Meer of Khyrpoor, emblazoned with the national emblem of a rampant tiger, and near it on a loftier staff, the more gorgeous standard of Britain, fourfold the size of the banner of the Meer; above and below the fort, are small wooded islands, inhabited by holy beggars, who are fed and attended by votaries from both sides of the water. The eye delights to rest on fertile groves of lofty date trees, mixed with vineyards and mango trees, and the Indus is seen meandering, far away in the distance, in snaky folds, through a perfectly flat and verdant country. The heights of Sukhur are a prominent feature in the landscape, and every hill crowned with a tent, a tomb, or a ruin. A battery of seven guns is in the midst of the British camp, and to the west of it the decayed mosque, the sainted shrine and minaret of Meer Masoom. The living objects in the foreground of the picture communicated to it, at the time of my visit, additional interest and animation; an encampment of several hundred camels occupied a small valley leading to the river, and their drivers had tents of black goat and camels hair raised on sticks. Belooch horsemen, with flowing beards, each in his national cap of coloured cotton and accoutred with sword, shield, and matchlocks, rode slowly among the hills, and asses heavily laden with grass and wood for the citizens, wound up the steep rocky ascent into the town. The monotonous song of the washerman filled the air as he beat garments of many colours upon planks, and troops of Hindoo and Moosulman women bathed at the different ghats, each of the former, on her way home, carried a vessel of river water to lave, with pious reverence the roots of a peepul tree, and the emblem of Muhadeva which stood beneath it.

Most of the houses in Roree rise to three and four floors, and some have five, and standing on elevated ground they assume an appearance of great vastness to the eye. They have no ventilators or towers on the roofs, to catch the wind like the houses in Lower Sind and Arabia; but the walls of the upper chambers are pierced with small windows without regard to symmetry. They are not glazed, but some of them in the harems of the principal residents, are filled with fine gratings of wood or mortar; some are open, and others furnished like the doors with folding shutters, which close badly, and are secured on the outside with a hasp and padlock; they are not painted any more than

the doors. The roofs are surrounded by a light rail or balustrade, and have spouts to carry off water. The upper story has sometimes a wooden balcony, supported on frail posts, and the houses of the rich are contained in a walled court, along with buildings and sheds for servants. The rooms have pannelled ceilings tastefully carved, as are the window-frames and door posts. It forms the only ornament, and there is scarcely any furniture; coarse woollen carpets, and mats, supply the place of tables and chairs; some houses are constructed of burnt brick plastered with clay; when sun-dried bricks are used, they are not laid horizontally, but in a sloping or diagonal direction, (v. Fig. 1,) and the upper walls, which are extremely thin, are any kind of timber placed without regard to regularity, with tamarisk twigs between them, and plastered with clay, and chopped straw. Lime abounds every where; but it is not the custom in Roree nor other parts of Sind to white-wash the outer and inner walls of houses, and they have a dingy uncomfortable appearance. The upright posts are chiefly tamarisk, fixed into horizontal beams of the same, and set in a stone foundation to preserve them from the depredations of white ants. Roofs are flat, and built of slight timbers, covered with reeds, and when reeds are not procurable, mats are substituted. The frame work is acacia, date, a whitish coloured wood called *Bank* or *Buhan*, and any other kind of timber; the acacia is scarce at Roree and Sukhur, and the date never used for door posts and pillars. The people put on the rafters a layer of **teer*, then †*chupree*, and thirdly a kind of reed called *Gondnee* (*Typha*), upon which they spread a coat of fat yellowish clay (*peela muttee*) mixed with chopped straw and the sweepings of houses. Those who can afford it mix wheat chaff with the clay, and when it is dry lay over it a compost of cowdung and clay, to fill up crevices. Dry cowdung is sometimes put on the reeds, and covered with chopped straw and clay; a roof thus formed is about a cubit thick; the wood and reeds occupy eight inches, cowdung the same, and clay two inches. The people assured me, that a roof properly constructed will endure half a century, and resist for twenty years the small quantity of rain which falls in Sind; a roof commonly stands ten years without requiring repairs, but the mats are soon rotted by wet. The cost of building a good shop, of burnt brick on the ground floor in Roree, is 400 or 500 Rs., and double the sum if a story be added to it; a large shop may be constructed of sun-dried

* The upper stem of moonj grass called in India Sirkee.

† The thick part of the stem of moonj grass called in India Surkunda.

brick for 300 Rs., and a small one for 50 or 100 Rs; most of the houses in Roree are calcined brick. To prevent insects penetrating the floors of warehouses, which are intended to receive grain and goods, they are sometimes paved with blocks of stone which may be procured in any quantity in the neighbourhood; the stones are covered with clay, and plastered with cowdung, and a thick coat of coarse salt strewed over it.

Houses above one story, belong to, and are occupied by one family, and when the children marry, they remove to another dwelling; all houses of this description, were built by wealthy merchants and bankers, before the reign of the Talpooras, and through their oppression many have been deserted by the proprietors. Families occupy the lower floors in the cold months, and remove above in summer; they cook and light fires, above and below, and there are no chimnies for the smoke to escape. The great height of the houses, and narrow streets and lanes, exclude the sun's rays, and the heat in the lower stories is quite insupportable to an European in summer. A single narrow door gives admittance to a gloomy and dirty parlour, which is not furnished with windows nor any aperture for light and air; to get at the door you mount an earthen stair with a narrow terrace at top. Poor people rarely use bedsteads,* and have neither pillows nor sheets; they spread their mats at night on the house tops, or terrace in front of their doors, and cover themselves with a blue cotton cloth, which serves them for a garment in the day time. Others lock up their goods in a back chamber, and sleep in their shops, which are open towards the street.

The principal thoroughfare leading up from the Indus is paved with bricks laid edge ways, and some of the lanes and passages in the town, are as narrow and dirty as the closes in the old city of Edinburgh. The bazars are covered in with mats like those of Arabia and Egypt, to keep off the sun's rays, but so much neglected that they are a public nuisance, rather than a comfort, and a horseman cannot ride under them without coming in contact with sticks and cotton straw, which cover him with dust. The interior of houses, is extremely dirty; dunghills fill the open spaces and suburbs of the town, and it presents altogether a scene of great squalidness and filth: here are neither swine, vultures, nor storks to devour the offal as in Indian villages, but loathsome, mangy, and half-starved dogs are numerous, and almost the only scavengers.

* A common bedstead, laced with a string of moonj grass, costs eight or ten annas (12 or 16 pence).

Roree contains about forty mosques, where prayers are recited, and more than double the number ruined and deserted. The great mosque stands on an elevated platform in the N. E. quarter of the town, and was built, according to a Persia inscription on the front, in the year 992 of the Hejira, or 265 years ago, by Futteh Khan Lieutenant of the Emperor Akbur. It is a solid, heavy looking pile of red brick, covered by three domes, and faced with porcelain tiles, and on the east or front face, are a paved court and cloisters, where travellers formerly lodged, but now in ruin. When I entered the court, a traveller was just arrived from a long journey, and stretched at length upon his back on the pavement, while a monjawur, or attendant of the mosque, trampled upon his thighs to give relief, I was told, to his weary limbs.

Near the mosque, in the Hindoo quarter of the town, the *Moss Moobaruk*, a hair of Mahomed's beard is preserved in a shrine covered with ill painted arabesques. The Sindees say there are only 2½ of these precious hairs to be found in the world; the one at Roree, one at Dilhee, and the remaining half in Persia; the relic, it is believed, was brought to Bukur four generations ago. and is enshrined in amber, in a gold case set with rubies and emeralds. The gold case is kept in a golden box, shaped like the pen-holders used by Asiatics, and wrapped in silk, plain and worked, with gold and silver flowers, and again enclosed in a wooden box clamped with silver. The hair is exhibited to pilgrims, and said to change colour like a camelion before their admiring eyes; a number of *Moojawar* or custodians, are attached to the shrine, and four of the principal families receive among them a daily allowance from Government of 1½ rupee.

Roree has two great bazars, one filled exclusively by grain-seller's stores, and the other with shops of cloth merchants, fruiterers, fish-mongers, *et cetera*; people of a trade reside together, and Hindoos occupy quarters of the town distinct from Moosulmans. In the east quarter are the remains of a mosque and serai of noble proportions, which might be restored and made habitable at a moderate outlay, and would be a great benefit to the town, and convenience to travellers, who still lodge under the broken arcades which surround the ample court.

The town contains a number of shops, where turquoises are set and polished, it is a favourite gem but the specimens shown me were small, and of bad colour. People who cannot afford to purchase real stones wear false ones set in rings, and women adorn their toes with blue enamelled buckles or clasps, and their nose with a very unbecoming gold ornament, one half circular, and the other half moulded in form of a

crescent. Silver anklets are common, and females who are too poor to buy ivory bangles wear bone, poverty often prevents their appearing in gay coloured raiment, which is nearly confined to the public women, but they display their fondness for trinkets, by frequent visits to pedlar's shops, where mirrors, combs, leaden rings set with false stones, and other female ornaments, are sold. These shops are crowded with the wives and daughters of tradesmen, who pass much time turning over and trying on baubles, and I observed many sorrowful faces when they relinquished a favourite trinket from inability to pay for it.

In the fish market, a number of women congregate round people who sell *Singhara*, a fish like a shark considered to be very unwholesome eating, but preferred for its cheapness. The fish is cut in pieces, and the women go provided with small bowls to receive any quantity they require for their families.

Roree is divided into 46 Muhullas or quarters, and I add a list, and the description of inhabitants in each, which may be received, I think, as a close approximation to truth.

1.—Kanoongo,* Government Officers, Kardars, Moonshees, Putwarees, &c.

2.—Wutchowaree, goldsmiths, &c.

3.—Suthdura, M. polishers and setters of stones, silk-weavers.

4.—Thushar (the name of a tribe of Moosulmans), M. cotton weavers, agriculturists, &c.

5.—Arain Khudwala, M. gardeners and fruiterers.

6.—Tukkur (a hill), H. Bahmuns, about 22 families of Hindoo shopkeepers.

7.—Musund, name of a tribe of Hindoo Gooroos.

8.—Arain (2d) Dulewala, name of a tribe of Moosulmans, M. farmers and agriculturists.

9.—Arain (3d) Ootradee, name of a tribe of Moosulmans, M. Farmers and agriculturists.

10.—Durgah, M. Moojawars, shopkeepers, cloth sellers, and labourers.

11.—Chyn Rae (name of a wealthy Hindoo living), H. shopkeepers and others.

12.—Chubootru, H. shopkeepers.

13.—Snyud Yakoob Khan Bazar, M. singers and musicians, H. shopkeepers, &c.

* H. denotes that the Muhulla is inhabited by Hindoos and M. by Moosulmans.

14.—Gujwanee name of a tribe of Moosulmans.

15.—Suyud Jan Shah (name of a Suyud living), inhabited exclusively by Suyuds; they are all Sheeas and permit no other class of people to reside in the Muhulla with them.

16.—Suyud Ghoun Sulee Shah (name of a Suyud living), inhabited exclusively by Suyuds.

17.—Suyud Ghoolam Shah (name of a Suyud living), inhabited exclusively by Suyuds.

18.—Moonda Kube (Moonda name of a deceased Fukeer), M. cotton-spinners, H. shopkeepers and labourers.

19.—Kazee Ghoolam Mahomed (name of a Kazee living), M. 15 houses of Hukeems (physicians).

20.—Moohur Kundee, M. stone and seal cutters.

21.—Kussab, M. butchers.

22.—Jiya Shah (name of a deceased Suyud), M. husbandmen.

23.—Kazee Pural (name of the chief Kazee of Rorree), inhabited by his family and dependents. I may observe that the names of Muhullas which are derived from inhabitants of note are often changed on their decease to that of their successors.

24.—Bokharee Shah (name of a *peer* or holy man living), M. mat, fan, and basket makers.

25.—Mootrib, M. singers and musicians.

26.—Boola (name of a deceased Shuekh, a tailor), M. tailors.

27.—Kazee Wudha, inhabited by the family and dependents of Wudha Kazee and Hukeem.

28.—Satee, name of a tribe of fish-sellers, Soonee Moosulmans.

29.—Puba, name of a tribe of fishermen who float on the Indus on earthen vessels; Soonee Moosulmans.

30.—Tukurwala Puba, fishermen, Soonee, Moosulmans.

31.—Suyud Gholam Ulee Shah, (name of the Moorshid or spiritual guide of Meer Roostum of Khypoor,) all Suyuds.

32.—Bahmun, all Bahmuns.

33.—Buzzaz, H. cloth sellers.

34.—Wudweerhye Kurmoollah, the name of a Shykh of the Wudweehya tribe, in the service of meer Nuseer Khan.

35.—Shykh Hydur Ulee, M. Moollas, husbandmen, &c.

36.—Churkh durwazee, M. tailors, H. labourers.

37.—Dhoora-wala, (from Dhoora a valley. The Muhulla being placed between two hills,) H. shopkeepers and labourers.

38.—Moondur, (name of a tribe of Moosulmans) milk-sellers.

39.—Roseewut, Moosulmans who make string of *wan* or *moonj* grass to lace bedsteads, &c.

40.—Tuwelee, so called because it held formerly many stables. It was inhabited exclusively by Moguls, and devastated by the Tulpooras on their accession. It is now almost deserted being occupied only by about twenty families of Hindoos and Moosulman silk weavers.

41.—Khuchurpoor (name of a tribe of Moosulmans), H. M. coolies, labourers, and poor people.

42.—Mumnanee (name of a tribe of Moosulmans), M. dyers.

43.—Miyanee, inhabited by a tribe of Moosulman boatmen so called.

44.—Peer Bodla, M. shoemakers, leather cutters, and husbandmen.

45.—Mudtur, Moosulman soldiers of the Kuheeree tribe in the service of of Meer Roostum.

46.—Khanpoor, formerly inhabited by Pushans, and now deserted except by three or four Hindoo families.

I ascertained the number of houses to be 2,130, at 5½ inhabitants to a house, which is I think a low average, this will give a population of 11,715 souls.

The shop-taxes (*mutkee*) of Roree, are called twice a year, and each trade nominates a *khulatree* or chief, and pays him a per centage on their profits, to gather the Government dues. The people assert that the Moghul emperors of India did not levy the tax, and that it was introduced by the Kathoras, but this is doubtful. All trades are conducted by Moosulmans; they are ironsmiths, carpenters, shoemakers, leather cutters, tanners, stone-cutters, tailors, dyers, weavers, fishermen, and fishmongers. The Hindoos work in gold and silver and are not prohibited following other trades, but it is considered a crime by their own people, and those who break the rules are accused of a tendency to Islamism. I took considerable pains to ascertain the amount of tax levied from different trades but am not sure that the following schedule is correct; the tax is subject to alteration, and some shopkeepers who are supported by chiefs and nobles are exempted from the cess.

Cloth merchants (Buzzaz), Rs. 6 per annum.

Cotton cleaners, Rs. 9 per annum.

Weavers of cotton cloth, (Koree)—cutters, polishers, and setters of turquoises and other stones (Weenjurr); barbers and washermen, Rs. 2 per annum.

Venders of brass, copper, and pewter ware, carpenters, slipper makers, and leather cutters, Rs. 4 per annum.

Ironsmiths, each person, 3½ per annum.

Bankers and money changers, Rs. 8 per annum (some of them are exempted from the cess.)

Goldsmiths and jewellers, $1\frac{1}{2}$ Rs. per annum.

Dyers of silk and cotton stuffs (Khombatee), Rs. 5 per annum.

Cleaners and polishers of swords, matchlocks, &c., (Tewura,) Rs. 10 per annum.

Dealers in pedlery (muharee furosh), such as combs, pictures, rings, mirrors, beads, boxes, and glass bangles. Wholesale fishmongers, and steersmen of boats, Rs. 3 per annum.

One distiller (a Hindoo), Rs. 3 per annum.

Tailors and tinkers, $\frac{1}{2}$ Rupee each person per annum.

Ox Butchers, (2 persons) each, 17 Rs. per annum.

Manufacturers of Indigo (2 persons), 18 Rs. per annum.

160 silk looms, 900 Rs per annum.

Fishermen, without reference to the form of their nets and mode of fishing, together 100 Rs. per annum. I have noticed the manner of levying the cess in the Journ. As. Soc., No.

Retail fishmongers, five fish per basket.

Wood cutters, together Rs. 100 per annum.

Goat butchers, together Rs. 95 per annum.

Roree contains seven families of tailors and four of ironsmiths, all of whom deserted their homes in 1839, for the British bazar at Sukhur to escape the shop tax, other tradesmen and artisans threatened to follow their example, and Meer Roostum was obliged to suspend the obnoxious tax, but continues to levy it in Khyrpoor.

There are no brass and copper smiths in the town, nor makers of blankets, canvass sacks and bags, and leather vessels for oil. The two last are made in Khyrpoor and Shikarpoor.

There is one tinner of copper vessels, and four polishers and cleaners of five arms, and a *Kular-khanu*, kept by a Hindoo of the Bhata caste, who distils liquor from dates both dry and fresh.

The number of water bearers (Panee bhurne-wala) amounts to ten families, and before the arrival of the British they sold *dillas* or earthen vessels, each containing about twenty seers of river water, in Roree, for a copper *pys*. Now they only give seven *dillas*, and earn about four *pys** a day.

* In 1839 the Sohrab rupee was equal to 51 copper *pys* or about two shillings English Currency.

The same individual works as carpenter and bricklayer; a clever fellow earns one *rupee* a day, and an indifferent workman four *anas* and his food, or two *anas* in lieu of food: the common hire is 4, 8, and 10 *anas* a day and food, but those who receive 12 *anas* and 1 *rupee* find their own. These wages equal what is paid in Savoy, where a carpenter or wheelwright has two francs or 1s. 8d. a day. There is no *Nirrh* or price current fixed by the state; every carpenter pay two *pys* of his daily earnings to the *khulatree* or head of his trade, who is chosen for superior ability. The Governor sometimes confirms the appointment, but it is not necessary to render it valid, and the *khulatree* is exempted from the shop tax which is levied on other carpenters; the tax is taken irregularly, and the amount uncertain. The rich and the young generally pay more than the poor and infirm, and the cess varies throughout the country under different Princes and Jalgeerdars.

A labouring carpenter with small business requires the following tools:—

	R.	A.	P.
An iron adge weighing $1\frac{1}{2}$ seer,	3	0	0
A small hand-saw weighing $\frac{1}{8}$ of a seer (6 or 8 <i>anas</i>)	0	8	0
A chisel weighing $\frac{1}{4}$ a seer,	0	8	0
A gimlet or borer, turned as in India with a bow and leather thong,	0	4	0
A small hammer weighing $\frac{1}{4}$ of a seer,	0	4	0
A plane,	0	2	0
A file weighing $\frac{1}{4}$ of a seer,	0	8	0

Rs. 5 2 0

A man, with extensive business, who keeps a shop, has four or five saws which cost together 5 or 6 rupees. A two handed saw weighing $\frac{2}{3}$ of a seer costs 2 rupees, and he has other tools in the like proportion but of bad iron, and not better made nor more expensive than the tools of the poorest carpenter.

Labourers, porters, coolies, grasscutters, *gars-walas*, who mix mud for building and plaster walls, earn 8 and 10 *pys* a day from the British, and 6 *pys* from shopkeepers and husbandmen, if employed at hard work, but the Governor and principal officers of Roree give 4 *pys*, and the prince 3 *pys*.

Sun dried bricks are formed in wooden moulds, and the makers earned in 1838, 4 *anas* a day and double the sum in 1839; two more are required for the process, and will prepare two thousand in a day at the cost of 1 *rupee*; in 1838, they sold double the quantity for the same sum.

There are very few builders in Roree, and in 1839, there was a great advance in the price of labour, consequent on the number of public works in progress, and the formation of a new cantonment at Sukhur, and private individuals were obliged to procure workmen from Shikarpoor.

The washermen of Roree and Sukhur call themselves *soomras* and do not wash by contract; they charge so much per piece and more for fine garments than coarse ones. Their charges are:—

For a silk loongee,.....	4 or 5 Pys.
For a turban, and drawers of soosee, ...	2 "
For a bochun, loongee, and woman's mantle,..	1½ "
For a shirt, sheet, and petticoat of coarse cotton,	1 "
For a boddice,.....	½ "

Rich and poor pay alike; children's clothes are charged the same as adults, and a double charge made for washing new clothes. The principal *suyuds*, merchants, and bankers, change their clothes four times a month, and sleep in their drawers, but put off their shirts and *bochuns*. Tradesmen, shopkeepers, and peasants, change their clothes twice, and sometimes only once a month; they consider dirt of no moment and wear their clothes till they are offensive, and Moosulmans and Hindoos are alike neglectful of their persons, and filthy in their habits.

After the washerman has collected the foul linen from different houses, he mixes a quantity of camel dung with water in a large and strong earthen pan, throws the clothes into it and rubs them forcibly against the dung; he then srinces them, carries them to a river, and dips them into a vessel of water mixed with *khar* (alkali) obtained from a wild plant called *lana* which yields impure carbonate of soda, and is burnt to obtain the alkali. He beats the clothes on a plank cut into sharp ribs until the dirt and dung are washed out, dipping them occasionally into the alkali and water; he then srinces the clothes, and steams them twenty-four hours over a large earthen vessel built into the wall of his house, to purify them and take out stains, and on the following morning carries them back to the river and washes them as before. He then takes them home, and squirts some water with his mouth on each cloth to moisten it, and folds four or five pieces one upon the other on a table. He next beats them with a stout wooden roller about twelve inches thick and eighteen inches long, which he uses with both hands, instead of a smoothing iron, to flatten them, and they are ready for use. Neither starch or indigo are used as in India; a few washermen have copper vessels but they are scarce.

Common soap is compounded of mustard oil with lime and *khar* (alkali), pulverized and imbued with water in the following proportions :—

Lime	48
Alkali	12
Oil	27
Water	12

Four seers of lime are mixed with one seer of alkali, and three quarters of a seer of oil; the stuff is strained four or five times through coarse cotton rag into earthen vessels, one and a half seer of oil is added to lignify it, and it is exposed to the sun in an earthen vessel for two days, and stirred with a ladle until it combines; the paste is not run into moulds, but set on stones in the shade to cool and harden, and is cut into small square cakes with a knife. Soap is not made in Roree, but there are four or five manufacturers in Khypoor, three of whom came from Bauwulpoor, and the rest from Mooltan, and I believe the Scindians are not acquainted with the art. The price of soap in Roree in 1839, was 4 seers the rupee, and 5 and 5½ seers in the preceding year.

The process of tanning and curing leather is generally inferior to the mode adopted in India; the leather workers of Larkhanu are however famous, and produce the best shoes, sword-belts, and water-skins in Sind. Good water-skins (*chhagul*) are made also at Shikarpoor and Kurachee, of bull's and buffaloe's hide, capable of holding about six quarts, and a traveller always provides himself with one, or a tanned goat's or sheep's skin, before he starts on a journey. The native soldiers of the Bengal army felt severely the want of water, when the army crossed the desert between Shikarpoor and Bolan Pass in March 1839, and feelings of caste would not allow many of them to drink from leather. The Bombay Sipahis furnished themselves with water bags, and suffered comparatively little annoyance from thirst.

The form is graceful, and it is usually about eighteen inches long and fourteen inches wide, and sewn neatly at the edges with thongs; it keeps water very cool and costs about 2 rupees. The leather braces at the sides are to suspend the *chhagul* to a bush, or tent pole on a journey. (v. Fig. 2.)

A sack of sheep or goat's skin is used to carry water across the sandy deserts of Sind as the country does not possess the tanks, wells, and reservoirs which pious men have constructed in India, in uninhabited spots, and are a blessing to the way-farer and his beast. When the traveller arrives on the bank of a river, he empties the skin, blows it up, and binds it on his belly and floats buoyantly over the liquid element. On touching

land he lets out the air from the sack, replenishes it with water and resumes his journey. He fixes the goat skin with loops to the upper part of his thighs and binds it lengthwise on his stomach with the legs of the beast uppermost, taking care that his head is exactly between them. It is a delicate task to preserve the balance. If the traveller shifts a little to either side the skin it turns him on his back and it would be a miracle if he escape drowning. He is instructed to make short and regular strokes with his hands and feet and preserve his presence of mind. Two native soldiers of the British army, attempted in my presence to swim the Indus at Sukhur on skins with their clothes tied upon their heads, and did not accomplish a dozen yards before they were thrown on their backs in the manner described, and but for the assistance of some Sindees, who swam with them in expectation of the accident, they would have been drowned.

The following is a description of the rude process of tanning and curing leather in Khyrpoor. After the skin of an animal has been well rubbed on both sides for a day, with a solution of lime to remove the hair and cellular fibre, it is left twenty-four hours, after which the lime is washed off and the hide soaked in water for the same period. When removed from the water it is rubbed over on both sides with thick gruel of wheat and rice flour for another day and night, and dried four hours. It is then well rubbed with *goor* (molasses) and linseed oil and rolled up very tight. It is suspended next day to a wooden triangle and stuffed full of the bark of acacia and **khyr* trees which contains the vegetable principle called *tannin*. Water is poured into it three days and the tan liquor that falls into a vessel placed underneath to receive it, is poured again and again into the hide which acquires a reddish brown hue in about the period mentioned. The hide being withdrawn from the infusion of bark, is drained and dried by turning it in the sun twenty-four hours. Some finely pounded salt is sprinkled upon it and it is well rubbed inside and out with linseed oil. It is then subjected to heavy pressure with stones for a day, and afterwards rubbed dry with cloths which concludes the tanning process. The hide of a Bull, Cow, or Buffalo costs 14 annas (9 pence) tanning and curing, of which six annas are expended on the materials and eight annas on labour. The sale price is 2½ rupees (5 shillings.)

One of the principal confectioners of Roree gave me the following list

* *Mimosa* Chadira. The Catechu (terra Japonica) is obtained from this tree.

of articles in his shop, which were, he said, necessary to carry on the business, and estimated the value at sixty rupees.

4.—*Kurahee*, Flat iron vessels with handles in which sweetmeats are boiled or fried.

2.—*Khoorpu*, Iron instruments for scraping off sweetmeats from pans and dressers.

2.—*Chutes*, Iron ladles perforated like a colander through which sweetmeats are forced with the wrist to give them a shape.

2.—*Khooruchies*, a large scoop or iron shovel with a spout.

2.—*Chumchu*, large circular iron ladles.

2.—*Jhara chumuch*, one large ladle, and one flat spoon, both of iron and perforated like a colander, for making *huddoo*, a species of round comfits.

10.—Brassplatters (*Shales*.)

10.—Wooden platter (*Khooncha*.)

2.—*Julebes ke turve*, an iron oven with a hole in the middle for making the sweetmeat called Julebee.

2.—Large brass bowls (*Kutorah*) with bamboo ladles attached to them.

2.—Small brass bowls.

2.—*Doa*, Wooden spades for rubbing and mixing sweetmeats.

2.—*Belna* Rolling pins.

4.—Dressers or tables on which sweetmeats are laminated.

2.—Table cloths on which *Butasa*, a kind of sweetmeat of a light spongy texture, is made.

2.—Sackcloth bags on which sweetmeats are laid in the shop.

1.—Wooden stool.

1.—Pair large scales.

1.—Pair small ditto.

Suyuda Ghoolam Shah, Yakoob Khan, and Ulee Ukbur Shah are wealthy, possess landed property, and keep domestics who live in their house; and there are also three *Suhakar* (great merchants) in Roree, who keep servants to fetch wood and water and cook their victuals. They get 3 or 4 rupees a month, and food once a day from their employers' mess. None of the other merchants and tradesmen keep servants, and journeymen who work for their masters in the day time return to their own dwellings at night.

Madhoo Rae Chhutree, formerly Moonshee of the deceased Prince Meer Sohrab, resides in Roree. He received a stipend of 120 rupees a year and 8 khurwars of grains, but on the death of his patron, his son and successor, Meer Roostum, threw the Chhutree into prison and extorted from him the sum of 3,000 rupees under pretext that he was guilty of peculation

in office. The accusation was, I believe, partly true, but his enemies exaggerated his offence.

Hindoos do not hire barbers permanently, and give them a *pys* for each visit. Suyuds and wealthy Moosulmans have barbers on their establishments, who live, however, in the bazar, and practise their vocation elsewhere during their leisure hours. They yet 8 or 10 rupees and clothes every six months. The barber cooks the meat, rice, and sweetmeats for a marriage feast among Moosulmans, and receives for his services 4 rupees, a complete suit of caste off cloths including turban and slippers, and food during the period he is employed. He also shaves, washes, and decorates the bridegroom. He nets usually four or five rupees at a wedding, but it quite depends on the means of the family. The prince gives him 40 or 50 rupees. The barber carries the torch at Hindoo bridals (*burat*) which last from one to four days, according to the wealth and means of the bridegroom. For this service he gets a present of three rupees, and four *pys* from each family of the bridegroom's friends. He is an important member of a household, and Solyman, the prince's barber, is I believe, the only person allowed to serve him with water to drink.

There are eight families of *Mootrib* (Moosulmans singers and musicians,) who come from Sehwan, and attend marriages. The men are admitted to the bridegroom's apartments and their women to those of the bride. The men sing and beat the *dhol* and *nuggaru* (kettle drum). The women sing and beat the *dhol* only. The bridegroom and his friends give a few *pys* to each *Mootrib* on the days they attend.

The *Chokro* or cleaner of privies eats carrion, and his occupation is distinct from that of the *shekhree* or sweeper, who is more choice in his diet. Families give the *Chokro* from five to eight *pys* a month and food on the days he attends, which is not oftener than once a week at some houses, and morning and evening at others. He also frequently receives a cast off suit of clothes once a year. A respectable land owner of Sukhur of my acquaintance, gives the *Chokro* who attends at his house morning and evening, two rupees a month and food consisting of a seer of wheat or joowaree, and two *pys* instead of *bor*. Some people give grain at the end of a month (30 seers and 60 *pys*.) The *Chokro* employs his leisure hours in making screens or tatties of Surkund, a reed, and earns by both occupations about $2\frac{1}{2}$ annas or 4 pence a day.

Shekhree or sweepers, are not kept on an establishment as servants, but go round the city daily, and get from one to four *pys* for cleaning and sweeping a house, and earn thus from eight to fourteen *pys* a day. Shopkeepers usually sweep their own shops, and the part of the street im-

mediately opposite to them. The land owner mentioned above, gives the *Shekhree* who attends every morning to sweep his house, one rupee a month, and he earns altogether about four rupees a month. There are no sweepers or other public servants maintained at the charge of the city, but four or ten shopkeepers have a watchman between them to guard their property at night, and each pays him two annas (three pence) a month. The guard is not, I should suppose, very active, as he usually labours all day at another vocation.

Bankers and merchants live out of the Bazar in another quarter of the town and take with them sufficient money for their daily transactions, and lock up their shops at night, and carry away their money bags. There are two great *Suhokar* or merchants. Khooba, who has four *Gomushtus*, and Jeo. Both are inhabitants of Roree, and Hindoos of the *Bhata* caste from Marwar. Each is said to be worth two lacks of rupees.

The principal bankers (*shurraf*) are Tara, Koondun, and Tikyn also *Bhata*s. Tara is reputed to be worth two or three lacks of rupees, Koondun about two lacks, and Tikyn between three and four lacks of rupees. Tara has the most business and his credit and respectability stand high in the estimation of his countrymen and foreigners.

The Bunneahs of Roree deal in grain, tobacco, oil, groceries, spices, sugar, and fruit, and realise larger profits than any other class of tradesmen. Their daily receipts average from ten to twenty rupees and some in the British camp take as much as forty rupees. Grain and other articles brought from the country, are weighed before they are offered for sale by the *Mookhee* or chief of the trade, who is entitled to a seer in every *mun*.

The Bunneahs choose the *Mookhee* from their body by a majority of votes, and he is not precluded carrying on business on his own account in the usual way. They treat him with respect and submit all important questions for his decision. Instances have occurred of the townspeople ill-treating the *Mookhee*, and the Bunneahs closed their shops and refused to sell grain until the culprit was brought to trial and punished. He usually regulates the price current of grain, but the Bunneahs can alter it without his concurrence. He transacts a good deal of business for them and they reward him liberally. The *Mookhee* beats with a shoe or stick a Bunneah convicted of cheating, using false weights, or taking from a customer more than the market price of grain, but he may undersell his neighbours if he pleases. If a case of fraud is brought before the Governor, he levies a fine (*wutr*) of the delinquent and places it at the credit of government. When a respectable Bunneah

is imprisoned for a breach of the law, the *Mookhee* not unfrequently becomes his surety, or furnishes security in a sum of money for his appearing to answer the charges. The *Mookhee* also investigates debts and pecuniary transactions between *Bunneahs*, and adjudicates between them.

The readiness with which shopkeepers disposed of their goods to our troops at Sukhur and realized payment, the absence of imposts and the security afforded them against oppression, induced numbers to pass from Roree to the west bank of the Indus. Settlers came from all parts of Khyrpoor, Shikarpoor, and Larkhanu. They were principally *bunneahs*, cloth-merchants and confectioners, and there rose up in a short time, an extensive, bustling, and populous bazar which excited the wonder of the *Sindees*, who, familiar only with the sight of towns in decay and a decreasing population, flocked from distant parts to visit a market where a few short months before there was nothing but a Golgotha and a wilderness. I counted upwards of one hundred shops in the bazar six months after the arrival of our troops. The readiness with which the people drew to Sukhur was the more remarkable because they entertained considerable doubts if we should occupy Sind permanently, and felt reluctant to incur expense in erecting even temporary sheds to receive their goods. It might have taught Meer Roostum, if he had sense to profit by the lesson, how much could be accomplished in a short period under a just system, towards restoring the prosperity of a town, which enjoyed in time past, a high reputation for wealth and magnificence. There is little doubt if the British continue at Sukhur and the Prince persists in levying the present exorbitant duties and taxes on merchandise in transitu that Sukhur will encrease rapidly in importance and become the great emporium of the commerce of the Indus for which its situation admirably fits it. The merchants and bankers of Shikarpoor, Khyrpoor, and Roree who bury their wealth from the fear of robbers, will find a secure asylum within its walls, and those towns, being deprived of the chief source of their prosperity will share the fate of Thatta and fall away gradually in importance.

There are eight descriptions of officers and servants employed by government in the revenue, police, and customs, and paid once in six months. The officers and dependents of the Prince's household usually receive *jageers* and assignments of land in lieu of money.

The public officers and servants are :—

The Kardar or Governor.

Darogha.

Izardar or Revenue Farmer.

Masool or Karao.

Dhurwae, or Weighman.

Kotwal or Watchman.

Muhta.

Moohurrir.

The Kardar is the Magistrate of Police. Lattu Nimbhun, the present incumbent, is a Chhutree of Thatta and usually resides at the capital, and deposes his brother, Mool Ram, to administer the functions of office in Roree. He has held the situation two years, and has considerable property in land. He is frequently bribed by offenders against the law to remit their punishment, but enjoys on the whole a fair share of popularity. His stipend is 40 rupees a month.

Lattu Deeper, the Izardar, resides in Roree. The Darogha exercises a general surveillance over the Izardar or Revenue Farmer, and checks his accounts, and assists the Kardar to control the Police.

The Masool is invariably a Moosulman and under the Kardar. He receives a seer of flour and two pys per diem, and a *Khurwar* of grain every six months. It is his duty to guard the crops and to see that no one cuts and injures them.

A Dhurwae is nominated to every town and considerable village in Khypoor and Mogherlee, and his duties correspond in some respects with those of the *Dundeedar Dundiya* who collects the market duties in India. He weighs grain, oil, spices, drugs, &c. sold in the town, and receives from the dealer two pys on a *mun* of ghee and oil, and a double hand full of each rupee's worth of wheat, rice, joowaree, bajra, and other grain. No grain can be sold of a *mun* weight and upwards without his attending to weigh it. He usually helps himself to a great deal more than the quantity he can legally claim. Without waiting to see the grain weighed he thrust his hands into the heap and scoops up a couple of double hands full. This is so much the custom of these officers that shopkeepers almost regard it as their right, and do not utter a remonstrance unless the Dhurwae is more greedy than usual.

Since the British camp was established at Sukhur, the Bunneahs had such extensive dealings with their brethren of Roree, that to facilitate business, they found it necessary to have a weighman of their own, and appointed a Sindee to the office by consent of the Bunneahs of Roree.

Meer Roostum had no voice in his appointment and his transactions are confined to the town and cantonment. The proximity of a large military force to Roree, infused such bustle and activity into the heretofore quiet town that the Government Dhurwae did not find his receipts diminished by the interloper. The regulations framed by the Bunneahs of the British cantonment do not oblige them to employ the Weighman, nor do they avail themselves of his services in their transactions with the country-people, but they are valuable in other ways, and they fixed his remuneration at two pys in every *kora* and company's rupee worth of grain, vegetables, and fruit they purchased in the town of Roree.

The Kotwal fulfills the same duty in this country as the chowkeedar or watchman in India. There are five in Roree, who receive each 2 rupees a month, and one is nominated to each of the *chousool* or beats into which the great bazar is divided. The grain market, and other quarters of the town are without public watchmen and the inhabitants protect themselves. The Kotwals remain during the day with the Kardar from whom they receive orders. They collect oil from the shop-keepers of the great bazar to feed a lamp which is burnt at night in each watch house, and they usually get small presents of money and food from the citizens on occasion of a marriage, and are sometimes invited to the nuptial feast.

The Moohurrir or writer is either a Moosulman or Hindoo and one is appointed to each town. His stipend at Roree is 12 rupees a month.

There are several *muhtras* attached to the offices of Kardar and Isardar to keep the accounts of revenue and commerce and record offences against the law. There are also ten soldiers under the Kardar's orders ready to proceed to any quarter of the town which may require their presence. They are an indolent half-armed band much addicted to the use of *bhung* or hemp juice, and each receives a stipend of from 2 to 10 rupees a month.

The mortar of the oil mill used in Roree is the trunk of a tree seven feet in circumference, hollowed to the depth of eighteen inches and terminating in a cylinder. The diameter of the cavity at top is twelve inches, and it is calculated to hold a *naree*, or nine seers of seed. The mill is set in motion by a single camel or bullock which is changed at noon, and the quantity of oil that two camels or bullocks worked alternately, can express in a day, is about twelve seers, the produce of four *narees* of seed. Nine seer of seed yield by pressure about one-third oil, very rarely a fourth. Mustard seed (*surshuf*) sold in the Roree bazar in 18.9 at 4 rupees the *mun*, or 60 rupees the *khurwar* of fifteen *muns*, and the same price in the country. After a bad harvest the price rises to five rupees a *mun*. In the

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autumn of 1839, $3\frac{1}{4}$ or $3\frac{1}{2}$ seers of oil sold for one rupee and 30 seers of cake (*khur*) for the same money. Oil cake is given to cattle with chopped grain stalks (*khurbee*), and is not converted to any other use.

Bullocks employed in a mill wear a cloth over their eyes, and camels small blinkers of basket work to prevent their shying. The pestle which revolves in the mortar has some times a pointed stick attached to it which throws back, of itself, the seeds and cake which fall over the mouth of the mortar as the pestle passes round. Sometimes a servant sits on the edge of the cavity and performs this office with a *rumba*, a sort of blunt iron chisel weighing about two pounds.

The lever E (see *Fig. 2*) is a piece of timber fastened to the Regulator D. with cords, and pierced by holes furnished with adjusting pins for the purpose of lengthening or shortening it when it is required to increase or diminish the obliquity of the pestle. At the extremity of the horizontal beam C. is a lump of clay modelled in the shape of a basket and bound together with sticks and date ropes. Some heavy stones are piled on the top and form a rude seat for the camel driver, and the camel is yoked to the end of the beam by ropes.

A camel for turning a mill costs 40 or 50 rupees, a bullock 25 or 30 rupees, and a press complete 30 or 40 rupees. The cost of two mills I examined was as follows:—

	Rs.	As.
Mortar of <i>ghana</i> wood A.....	20	0
Four square beams that surrounded the mortar B..	4	0
The pestle, lever E, and horizontal beam C. all round.....	3	0
Iron <i>rumba</i>	0	8
Four earthen pots for oil, each holding three seers.....	0	8
The carpenter who shapes the wood gets 5 rupees, and a meal a day for as many days as he is employed. It takes him about ten days to make a press.....	5	0
Cost of carpenter's food, say.....	1	0

Rs. 34 0

Three men are required for a mill. One drives the camel and feeds the mill, and receives 5 rupees a month and food from his master's kitchen. He is expected to extract four *narees* of oil when his labour terminates for the day. The second domestic cleans the camels or bullocks and prepares their food, and receives 3 rupees a month; and the third domestic brings water from the Indus for the use of his master's household and cattle and gets 2 rupees a month. All the servants are expected to assist occasionally in house work.

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Oodoo, the proprietor of the mills I am describing, is the principal oil-maker in Roree, and has two mills worked by camels and bullocks, and three servants for each mill. He is a bunnear; and the produce of a *naree* of oil seed is carried away in an earthen receiver as soon as expressed to his shop for sale. He lets out his mill on hire by the day, or to press any quantity of oil, at the following rates, which include the services of domestics and camels.

	Rs.	As
For pressing a <i>naree</i> of mustard seed (<i>surshuf</i> ,)*	0	2
Hire of mill per diem for ditto,	0	8
For pressing a <i>naree</i> of linseed,† khus grass, and safflowers,	0	2½
Hire of mill per diem for ditto,	0	10
For pressing a <i>naree</i> of cocoanuts,	0	3
Hire of mill per diem for ditto,	0	12

The cost of feeding a camel and a bullock in the town of Roree is the same or about 3½ rupees a month, but a camel is more easily nourished in the jungle about Roree which does not produce grass and herbage for cattle. The oilman assigned another reason for preferring the camel, that he could, when not employed in the mill, make him more generally useful than a bullock, in bringing oil seed, grain, and fodder from the country.

Oil seed is measured with a *pinkes*, a wooden measure of fourteen † *anas* weight, and ten pinkees go to a *naree* of nine seers.

By far the largest quantity of oil consumed in Khyrpoor is obtained from mustard seed (*surshuf*). But the following are also subject to pressure, linseed § (*koonjuck*), khus safflowers (*puwaree*), and cocoanuts. Twelve seers of the best linseed yield half the quantity of oil. The average return is from four to six seers and never less than a fourth. A small quantity not exceeding one or two seers is extracted at a time for medicinal purposes. The seed sell at 5 Rs. the *mun* of 40 seers, and oil at 32 Rs. the *mun*.

Khus seed sells at 4 Rs. the *mun*, and oil at 13 Rs. the *mun*. Ten seers of seed yield from 2½ to 3½ seers of oil.

* *Sinapis dichotoma*. Roxb.

† *Andropogon muricatum*.

‡ The *ana* is a weight equal to 6 shorabee rupees or the sixteenth part of a seer.

§ *Linum usitatissimum*.

|| This is about the return in the district of Etayuh, 7½ seers of linseed, castor, and mustard, give about 3 of oil, and the man who works the press is paid in grain.

The return of oil from a *naree* of safflower seeds, if good, is 1 or 1½ seer but sometimes they yield nothing. The price of seed is 1 R. 11 As. per *mun* and oil 20 Rs. per *mun*.)

There is no demand in the town for cocoa-nut oil. The nuts are nets to the press across the desert from Jeysulmeer chiefly by the Rajah of that principality and are worth 18 Rs. the *mun*. If good, they yield half their weight of oil ; the average return is one-third or a half.

(To be continued.)

Report of the Curator (HENRY PIDDINGTON Esq.) of the Society's Museum for May.

For the month of May, I have to report as follows :—

Geological, Minerological, and Palcontological Departments.

—We continue to catalogue and arrange in these departments. I have been able, by the kindness of Mr. Prinsep, to recover three more of Dr. Voysey's note books amongst the papers of Mr. J. Prinsep, making in all 5 books of notes, from which I trust we shall be able to extract much valuable information relative to our collections ; and it is only thus, by collecting slowly, putting together piece by piece, and collecting all with the series of specimens, that we shall be able to establish any thing like order, I regret deeply to state that I can obtain no trace of Captain Herbert's catalogue of his Himalaya specimens.

Ornithological and Mammalogical, &c.—Nothing new.

Osteological.—We have been able to acquire here two Samurs and a Neelghye for the trifling sum of 78 Rs. ; both are desiderate in our collection. The Neelghye is killed for the purpose of obtaining its skeleton.

Botanical.—I have been fortunate enough to discover a box of Himalaya mosses, sent down from Simla in 1838, by Mrs. Siddons. Upon testing these, I find that, of 18 sorts, at least a dozen give very fine, and some of them brilliant colours (crimsons and crimson browns), so that they are thus of themselves of much promise as dying lichens ; and will I hope give

rise to a spirit of enquiry to this hitherto neglected branch of the resources of India ; specimens of the lichens and a box of the test liquors are on the table. I have embodied my remarks in a paper for the Journal, of which spare copies are also available, and now on the table. I beg to suggest its early communication to the Agricultural Society, with a set of specimens for their information.

Museum of Economic Geology.—From not being able yet to procure our cases from the native mistry we have not been able to finish our arrangements. We have obtained several valuable additions to this department, which I notice in the donation, amongst which are an excellent series, from the iron ore of Burdwan to the forged metal, by Mr. Wm. Prinsep ; American lead ores from Mr. Tregear, with ores and specimens of various kinds from Ajmeer, by Captain Thoresby, and the Nizam's territory from D. Walker (M.A.). A very valuable, though not a showy contribution, is one of a specimen of fire-brick from Futtyghur ; presented by Dr. Angus on the part of Dr. Hunter.

We have been able to make a very interesting discovery in this department. In some soils brought from Chedooba by Captain Halstead of H.M.S. ' Childers,' and referred to me for reporting upon, I recognised one resembling the curious Sea-Island Cotton soil of Georgia, which looks like a mixture of sand and charcoal (specimens of both are upon the table.) Upon a careful analysis they prove to be identically the same, and a special report has been made on the subject to Government. It is highly satisfactory, that, almost at its very outset, the Museum of Economic Geology should thus have given the most practical proof possible of its utility, by doing full justice to this valuable discovery of Captain Halstead's ; for I need not remark that this soil was hitherto considered unique in the world, and thus was supposed to give the Americans a natural monopoly of the production of Sea-Island Cotton. We now

know that it exist in a country where cotton is a regular crop ; and almost at our doors !

The additions to the Museum during the present month have been as follows :

Conchology.—A shell called by the Chinese Shew-cha from Chusan, } Captain Rankin,
Beng. Vols.

(Pollicesses cornucopia,) ..

Osteology.—2 Samurs, } Purchased.
1 Neelghye,

Miscellaneous.—2 Neptune's Cups, ... } W. Prinsep, Esq.
1 Coil Assam Rope,

A set of the coloured Liquids obtained by the ammoniacal test from 18 specimens of Himalaya Lichens in the Society's collection, } Curator.

Museum of Economic Geology.—Soils and minerals from Che- dooba, } From Government

Fire-brick from Futtighur, .. Dr. Hunter.

Ore, flux, slag and manufactured iron ; from the Burdwan Iron-mines, } W. Prinsep, Esq.

Lead ores, from the Grossic mine, United States, } V. Tregear, Esq.

Copper and other ores and specimens from Ajmere, .. } Captain Thoresby,
O. R. Agent.

Iron ores and other specimens from Hunumkoondah in the Nizam's territory, .. } J. Walker, Esq.
M.D.

Museum, 1st June, 1841.

NOTE.—I insert this report in this No. with reference to a further notice on Che- dooba soils which will appear in No. 114, and to which the above remarks are inductive.



JOURNAL

OF THE

ASIATIC SOCIETY.

Report on the Island of Chedooba.—BY EDWARD P. HALSTEAD, Esq.
Commander of her Majesty's Sloop 'Childers.'

(Continued from page 377.)

DIVISION V.

Manners and Customs, Education, Language, and Religion.

The population of Chedooba is, with few, and trifling exceptions, entirely Mug, and from their isolated position, its inhabitants afford perhaps a truer exhibition of the character of these people than their brethren of the main land, or of Ramree, whose intercourse with their fellow subjects of different parts of the Peninsula, has by no means been attended with benefit to their original and national character. The Mugs of Chedooba, are a simple, moral, and inoffensive race, of frank open manner, cheerful, and forgiving disposition; exhibiting much independence of feeling, the consequence of a thorough contentment with their lot; respectful to their superiors, though perfect strangers to the crouching servility of the Hindoo; throughout their character, exhibiting those traits, which are most readily appreciated, and admired by ourselves, some which might even be copied with advantage, and which, if duly fostered and encouraged, offer with his freedom from all the obstacles of caste a ground work whereon to elevate the Mug high, if not the highest, in all the benefits of European civilization of all the natives of the East, subjected to our rule, from whom in almost every point of character, as in appearance he differs most widely; in the last particular less to his advantage, than in the

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former, as his features proclaim him a Tartar, and are but rarely found modified with the more regular ones of the people on whose border he has so long inhabited.

The only custom among them, (other than the idolatrous ones of their worship of Gaudma) which appear at all repugnant to our own feelings, is that of a plurality of wives, which is permitted; but is a permission seldom taken an advantage of, especially in Chedooba.

The most notorious case met with, was in that of the Soogree of Menghieng; a fine intelligent man of 45 with 3 wives, and a family of 18 children, from 24 years old to 6 months, all living in the most perfect harmony and peace under the same roof. Although in every respect *bona fide* wives, yet the two younger observed a dutiful attention and submission to the first and eldest, who was considered as the governess of the household, the others in regard to her, conducting themselves more as daughters. It was a curious and not uninteresting family scene, and I spent near two hours with them, enquiring, without the slightest offence to husband, wives, or children, into the peculiarities, and relative duties, and stations of a style of family partnership I had never before witnessed so extensively, and was answered with the greatest frankness and good nature, our remarks often causing a general laugh. The elder wife had supplied her share of the family circle, not so the two younger, and at least in this case, polygamy does not threaten a cause of depopulation to Chedooba.

Marriage is merely a civil contract unmixed with any religious ceremony or sanction, and is the result of mutual preference, as well as of the interposition of friends and parents. Those of the would be bridegroom proceed with fruits, flowers, wearing apparel, and ornaments to the parents of the bride, and seek her formally in marriage. If granted, the presents are left for the bride, to whose house the bridegroom proceeds in the evening, and where he resides and serves his father-in-law, not as a servant, but as a partner or a son for an indefinite period.

As with mutual consent the ceremony is performed, so with the same is it annulled, and though this privilege is not unfrequently acted on in the more populous towns of Ramree, and the Main, yet it is merely so in Chedooba, and three cases came under observation, where, although separation took place on the side of one of the parties, the other denied all acquiescence in the transaction, and with the community in general esteemed it a desertion. One was on an interesting case, arising from the conversion of the husband to Christianity; to all attempts at reconciliation on the part of himself and others, an obstinate denial was

returned by the wife, while he persisted on his part, on keeping and educating his children, two sons.

On Flat Island, the Soogree and his dame, had been man and wife upwards of half a century. They were both verging towards 80 years of age, and their direct progeny on the Island, with themselves, amounted to 50 souls.

In the case of mutual consent, both parties are at liberty to form a new connexion, and there are no such matters as family names, whereby such intermixture of families may be perceived. Not the slightest relation exists between the names of children and parents. All appellations have a meaning, the males generally of some enviable moral or personal quality, or happy anticipation of the future. The females of some tree or flavour, or feminine Mug grace.

Marriage generally takes place early in life ; as soon as marriageable, the females assume a particular dress, a species of jacket, which is changed on that happy event to a larger covering over the upper parts of the body. The lower garment, both before and after entering on that state, admitting perhaps of improvement on the score of amplexness ; on widowhood, the maiden dress is again assumed. An ample cloth around the middle, and a fellow one, thrown over the shoulders when cold, constitute the covering of the younger males, who as bachelors live in a distinct part of the village. The elders wear a white jacket shorter or longer ; an article of this sort, made of dark coloured glazed cotton, slightly padded with the same material is frequently used by the elder males in the cold or fine season, and is brought from Ava, which also supplies a gaudy silk cloth of curiously interwoven colors, but coarse workmanship, which is used as a waist cloth on high occasions by all who can afford it. The common cloth is a cotton plaid of blue shades, and of home manufacture. A finer cloth or turban of white is used by the men, and interwoven with the hair, which, in both sexes, is of a beautiful glossy black, and great length and luxuriance, it occasions with both the only labour of the toilette, and they are very proud of this natural ornament. With the females, it is simply formed into a roll or knot at the back of the head, being parted for that purpose in front, and brought along the side of the head in a manner not uncommon in England ; much good taste is sometimes displayed by the simple addition, as ornament, of some favourite flowers. Children of both sexes are frequently ornamented with silver rings on the wrists and ancles, and a string of silver coins around the neck ; these are usually heir looms in a family, and in turn, grace all the young olive branches as they shoot forth.

Infants are slightly, if at all clad, and there is no custom among these people tending to produce any deformity of limbs, which from the birth are allowed free development, nor is any care taken to prevent exposure to either sun or rain. Infants are seen in the houses of all the villages crawling about alone, and as soon as old enough to get down the, so called, stairs of the raised floors, they are to be found in groups amusing themselves without any controul, and naked as when born. The girls clothe when 5 or 6, the boys seldom submit to the restraint till 8 or 9 years old. This freedom enables them to exhibit in youth well made persons, tends to much personal activity, and inures them to subsequent exposure, without any fear of ill consequences. The government of their children is mild and affectionate, and is repaid by duty and attention in after life, and there is little evidence to be derived from their noise of crying, of the number of children who flourish in a Cheedooba Village.

Though well proportioned, and exhibiting a good share of muscle, especially on the lower limbs, they are a small people, and of moderate stature, the tallest among them not attaining a height of 5 feet 10 inches; 5 feet 4 or 5 inches may be the average; the females less.

Though with decided Tartar features, all search for any thing approaching to what constitutes in our ideas, beauty, must be in vain, yet there is an open expression of frankness and good humour, in the countenances of many of both sexes, and very commonly so in age, which with us must be allowed to pass in its stead, and among themselves constitutes that envied distinction. But truth compels to the avowal that this is found oftener with the males than females. The colour of the skin is not a black but that of a mulattoe.

Of ornament, when grown up, neither sex have any; but a practice designed for such purpose in all other countries, is here transferred into one of every day usefulness; with both, the lobe of the ear is perforated, and the large hole fully occupied with the ever accompanying cigar. A roll of paper fills its place, when not present, in order that the capacity of this natural cigar case may not be diminished by contraction; where it can be afforded, silver is used instead of paper, and sometimes the white pith of a particular wood is used. When about to make a journey, the dimensions of the cigar are greatly increased, and it is then as thick as the fore-finger, and from a foot to 15 inches in length; a party on the road with both ears thus mounted, looks not a little singular. Neither the practice of smoking, nor the method of carrying the cigar is confined to the men, and from infancy both sexes are accustomed to the indulgence;

but as before noted it is of a most mild quality, and made principally from a leaf found in a jungle, with but little tobacco. It is the only one of an excitable nature in use, if indeed the mild mixture they smoke, is so at all. The only beverage is water, and though the licensing of shops for liquor and opium, is, in the more populous towns of Ramree, and the mainland, gradually tending to deprive their neighbours and countrymen of those parts, of the invaluable inheritance of national sobriety, Chedooba is as yet clear of the infection.

The acquirements of education are the result of the labours of the priesthood, who thus repay the maintenance allotted them by the public. All classes receive a like attention, the extent of which goes to the learning to read and write; of this benefit however, the children alone of the more populous villages of Chedooba principally partake, they alone being large enough to maintain continually an establishment of the sort, though every village has attached to it, a Riong or Church, and a School room, to which occasional visits are paid by itinerant priests. Spinning cotton, and the use of the loom are branches of domestic education, learnt by the females at home; while as soon as he is old enough to bear its weight, the boy sallies forth with his parent, and his dâh, to assist in clearing the jungle for cultivation, or in felling it for fuel.

The skill in the use of this weapon, thus learnt, is very great; in shape it resembles our bill-hook, with the sharp edge along the outer or convex side, but it is without the crook, longer and heavier, the largest in this latter particular fully equalling that of one of our own axes, with a blade nearly two feet long, and about 4 inches in width. With this weapon, the ease and rapidity with which the largest trees are felled is very great, and the Mug is perhaps as dexterous a woodsman as the Kentucky man himself; the facility with which acres of large trees were felled on the hill tops, to clear them for Theodolite observation, gave ample opportunity to note and appreciate his ability in this point, as from it was reaped a most valuable and correct means of effecting a survey, which without it would have been greatly increased in labour and sources of error, as well as occupation of time.

The tree is not felled so low down as with the axe, but breast high, which raises an objection to felling with it for timber, though not in mere clearing for cultivation. Every man in the Island has his dâh, which is his constant companion, and is in constant use, to fell his timber, to make his cart, his house, his canoe, his baskets for fishing or other purposes, and last not least to chop up his curry. A Mug without a dâh might as well be without a right hand.

In felling trees of very large diameter, an axe is made use of, it is a sort of thick chisel, with about a two inch blade, inserted into a handle knobbed at the end for its reception, where it is further secured by a seizing of rattan. This is a formidable weapon in a Mug's hand, and he fells his tree with it quickly and clean.

With a disposition greatly averse to any continued or fixed labour, the Mug yet is always on the move, either at work, or half amusement with his dâh in the jungles, or wandering through them from village to village; this constant out door exercise and use of limb, gives a suppleness, and developement of muscle to their legs and thighs particularly, which constitute him an untiring walker, and is very perceptible even in very old age, rendering him to the last independent of all other means of progression, and able still to indulge his love of rambling with those he was born with.

I found to my astonishment that the oldest man on the Island, numbering 106 years, had walked from his own village, a distance of 13 or 14 miles, in order to meet me at another, and walked back again on being disappointed. He subsequently came two miles from his own village to where we did meet, and during our interview, I could not but be much struck with the exhibition he made in illustration of the above remarks. While on his body the skin lay quite loose, and was perfectly festooned with wrinkles, his legs and thighs exhibited as much plumpness, and fullness of flesh and muscle, as they could have done, when they had performed but half their over century of work, and though in other cases I found old men, whose faculties had broken down under years, I never heard of one whose limbs had given way, or who was bedridden; a staff was all the assistance the above old gentleman required.

Beside the above out door duties and amusements all the heavier labours of agriculture fall to the share of the man; but the cleaning of the rice for ordinary consumption after it is brought in, is done by the women, with the instrument in common use for this purpose in other parts of India. This falls to her lot as one of the household duties which are assigned to her; but in none any more than in her general treatment and place in society, has she ought to complain of. Besides her household affairs, she goes to market, and prepares the family meal, at which she invariably eats out of the same dish with her husband. No restraint is imposed on her liberty, and she may attend all places of amusement and religion, unaccompanied by her husband. In the performance of religious duties, the women are more punctual and attentive, than the men. But she is restricted during her monthly state from

having any connexion with them; to this restraint is added, that she may not touch her husband's head, save for the purpose of cleansing it, when she makes obeisance before commencing work; that she may not touch the sacred books nor the consecrated image of Gaudma, nor pass over the shadow of a temple or any place containing the said image, but on foot and barefooted.

The villages of the western circles are, strange to say, in better condition, and cleaner than the eastern ones, and the houses display more neatness and attention to repair.

In erecting his hut, the Mug has only to purchase materials, the neighbours assemble as soon as these are prepared, and his house is established in a very short space of time. They are all constructed on the same plan, raised on poles from the ground several feet; the flooring and walls are of bamboo matting, wove in a neat pattern; the roof of the Ahup leaf neatly covered with a frame work of bamboo to prevent its being injured by the monsoon winds.

All apartments whether sleeping, sitting, cooking, bathing, or private, are on this raised floor, through which all refuse finds its way underneath, where what is left by dogs and vermin, serves as manure for the garden attached to each house. Shelter is also afforded underneath to the poultry, of which they have much, and sometimes to the smaller kine. The kitchen range is formed by a round tray of moist clay about 3 feet in diameter, and 5 or 6 inches thick, leaving three small projections or columns on its centre, whereon to rest the cooking pot, when dried in the sun, it is fit for employment, and effectually protects the combustible floor; the furniture consists of a few reed mats, and each member possesses a wooden pillow, these are the whole amount. The rice for the family meal is served up in a wooden bowl, around which the whole party squat; the fish, flesh, fowl or vegetables are served in small coarse China tea cups, the right hand, and the mouth are always washed before, and after the meal; water is the only beverage at the meal, and when it is over, pawn is in use, and the cigar lit. Two meals suffice during the day, the one at 7 in the morning, the other at sun down, and both are very soon despatched. On taking a journey the meal is carried in a few leaves bound up with a rattan; on such occasions they have also a practice of cooking rice, which I believe to be peculiar; it is partly boiled, and then pressed with force into a bamboo, with a further portion of water, and when full, the bamboo is put into the fire, and roasted. The rice within, when dressed, thus keeps for many days, and a bundle of these bamboos is the simplest

manner of carrying more than a day's provisions through the jungle. When to be eaten, it is split with the dāh ; the rice is formed into a kind of semi transparent jelly of strong consistency with the soft inner lining of the bamboo firmly attached to it, which is eaten with it. When baked with milk instead of water, and with the addition of a little flour, rice cooked in this manner, is described as quite a luxury.

As in the construction of his hut, so in all other labours and necessities, the readiest assistance is rendered by every one to all ; hospitality is universal, and the last grain of rice will be cheerfully shared with the stranger ; every village has its traveller's house, and he who occupies it is the general guest. Besides being too independent to beg when able to work, amongst a people so disposed charity has no place, or rather the universal hospitality is exalted into that virtue. At a late period when the whole province suffered from the visitation of cholera, hundreds of children were orphaned, but neither were they sold as is common in India, nor was the assistance of Government called in charitable aid for their support ; all were adopted at once into families of neighbours or relations, and treated as their own sons and daughters. No part of the revenue was sought to be remitted, on account of the general calamity, but all was paid.

The Mug of Chedooba is strictly honest, no such thing as theft is known among them, and even in the more populous towns, it is most rare, if known, for a Mug to be brought into court on such a charge. In their dealings with one another but one price is asked, though the simplicity and honesty of such a custom is giving way before the worse example of the Bengallee in the larger towns ; but no Mug will degrade himself by a charge of 'customs' on the purchaser, for the benefit of his servant. To this may be added that in all my experience of them, I do not know to have had occasion to entertain even suspicion of their word. The Mug will not bear the restraint on his time, or his will, necessary to qualify him as a servant ; and though hard labour, when imposed, is submitted to with his universal cheerfulness, it is never freely chosen. Their respect and esteem of Europeans is very great, and any services in their power, were cheerfully performed for our party with no object beyond that of giving satisfaction. On many occasions I have found it necessary to despatch a messenger to the ship, both to take, and to bring communications or supplies ; the parties were always punctual to the time they would appoint for their return, but would never take a pice in remuneration, seeming hurt even at the offer, and whatever return was made them was always obliged to be given strictly as a present, and as a pledge of

approbation and kindly feeling. When engaged in the endeavour to bring down from the West Hill a large tree, which I was anxious to obtain, nothing could exceed the cheerfulness with which the labour was undertaken, in fact so much so as to give it more the character of an amusement; with the exertion of all the able bodied men of the Island, amounting to about 1,200 they were yet unable to move it after many days trial; and they requested assistance from us. With a party of twelve men, and purchases we joined them, and with this assistance the ease with which the tree was moved, astonished and delighted them; the labour was subsequently given up as occupying too much time, but up to the time of their dismissal to their villages, nothing but cheerfulness and good humour prevailed.

Not the slightest inconvenience was occasioned during their stay of 14 days in the neighbourhood of the village, which was our head quarters; parties were sent for their provisions from their own houses, and not a grain of rice or a fowl was demanded from the village, which was just as quiet, with the close neighbourhood of a body of men, as if no one had been there, the jungles affording shelter by night. A dinner was given to all who would remain to partake of it, on their giving up the work, the only return which could be made in approbation of their cheerful and efficient labour, and a promise was afterwards procured for the remission of a portion of the annual taxation, to those villages who were called on to render the greatest assistance in the labour of the Survey.

In the case of one of our Bengallee attendants who had struck a Mug, of which complaint was made to me, was afforded an evidence of their forgiving and unvengeful disposition. The man though much hurt with the blow of a stick, and indignant at it, expressly requested on the offer being made, that no punishment might be awarded, all he required was that such treatment might not again be repeated. They are very fond of public amusements, which are generally given in honor of the exertion of some work of public utility, at these, plays, dancing, and wrestling take place; of the former two, not much may be said; of the latter, the most remarkable feature exhibited, appeared the total absence of all angry feeling on the part of the antagonist. Boxing is also at such times another exhibition.

Old age is treated with great respect, and the elders of a village, even when not officials, are consulted and listened to in all matters of debate relative to the interests of the community. When addressed they are called ' Appogee,' a title of respect.

From his frequent indulgence in bathing, the Mug may be inferred to be partial to cleanliness, but it is more with the idea of cooling his body that so much water is used, his head being seldom wetted, and on this score there is room for improvement in his character, as relates to person and to clothing, but especially with regard to children, whose great freedom from any confinement, calls perhaps for the greater recourse to means of cleanliness in their case.

The language of the Mug is with slight difference, the same as that of his neighbour the Burmah, of which it would seem to be a mere provincialism, and the similarity in this, in feature, religion, and all leading customs, and points of character, proclaim them both to be the offspring of one common stock. A difference in the pronunciation of certain of the letters, constitutes the principal distinctions between the two languages, and of these distinctions, that affecting the Y and the R stands first; the Y with the Burmese is always changed into an R by the Mug. The language in general use sounds uncouth and indistinct, but when properly spoken is said to be otherwise; it is difficult to acquire by Europeans.

The character again is the same as that of the Burmese, so that these people have all the benefit of the productions of the Moulmein press, which are printed in that character, and amongst these that of a translation of the whole Bible into their vernacular. Their own books which treat principally of religious or philosophical subjects are impressed with a style on dried leaves stitched together, and rubbed with the finer produce of the Petroleum wells to preserve them; paper is only used by the district officers of different grades. The religion of the Mug is that of Boodh, and in Chedooba I believe, the only exception to this, is to be found in the Christian convert, who has been before mentioned; in Ramree and the main coast, Mug Mussulmans are not uncommon.

How far the character of the Mug has been moulded by his religion, or how far it is the result of mere natural constitution, is a speculation well omitted here. But in the mild morality inculcated in the code, and practised in the conduct of its professor, at least an adaptation of the one to the character of the other is observable, beyond the common case in these matters, and is both pleasing in itself, and betokens wisdom if not goodness in the framer of the system; this much may be truly said in its praise, but to this is all favorable opinion I think to be limited. The sanction by which its observances are enforced are absurd, and unworthy the attention of a reasonable being. Its history a most childish invention, and is comparatively commendable again in its freedom

from the obscenity which stigmatizes other religions around it. It stands also peculiarly marked off from them, based on its principles of perfect selfishness, in not even acknowledging fear or respect for a Supreme Being.

Annihilation is the goal to be attained, not participation in the perfections, nor reward at the hands of deity; in reference to whose anger or approbation, not an action to be performed has the slight regard, even if his very existence be at all admitted. A certain amount of good deeds registered in the sacred books are to be performed, in order to entitle you to a happier state of existence for another life, which is again to be a scene of endeavour to the same purpose, and this gradual improvement in successive periods and states of existence (if merited) is to continue progressing till a certain point of goodness is attained, when as he can then become no better, existence itself is of no further use, and as the reward of all this labour, in the attainment of perfection, the fortunate being is annihilated; a consummation to which their object of worship, Gaudma, arrived in the most limited number of existences ever yet run through. On the other hand the usual terrors of transmigration are held out, and a fish or a dog, or some less reprobate animal, is to be the lot of those whose misdeeds prevail against their good ones. Some infractions of the law, indeed are of themselves sufficient to ensure such punishment, and I was gravely assured by the principal man on the Island, who was ordered to attend me throughout it, that if unluckily I did shoot a wild pig, hereafter I should meet my desert, in not only being turned into, but actually shot by one myself.

This person, the Soogree of Chedooba, was otherwise a very intelligent young man, and though the most zealous adherent of Boodhism on the Island, yet he seemed but half pleased with it, and was fond of bringing its merits into discussion, and never shewed the slightest symptom of annoyance at the laugh which a relation of its absurdities sometimes called forth, and which his better reason told him was well deserved. He had been at school at Ramree studying English, when called away to succeed his father in the Soogreeship 4 years since; and he had then built a *King* or Church, a work which had fairly committed him to as strict observance of all other good works, saving celibacy, as if a priest. In observing the prohibition to eat of any thing which had ever enjoyed life, in order not to encourage its destruction, he would not touch of food wherein were eggs or milk; but in the list of the protected the poor fish are not included, and he laughed heartily while taking advantage of his privilege, and making a sound

meal of some delicious oysters all alive. When on board the '*Childers*,' he reconciled his conscience to the indulgence of eating salt pork with the reflexion, that as it had been killed so long, and so far off, it was impossible it could have been killed for him.

The observance of this prohibition is the only one generally practised in the Island, and that more through habit, than with a sense of its religious necessity. In short, their religion sits but lightly on them, maintaining its supremacy more because it is unopposed by any other, than from any attachment of the people to its precepts or practice, and when discussing, and ridiculing its absurdities, as brought forward by our friend its advocate, the laugh and joke was fully participated in by all the hearers, who appeared much to enjoy and even promote such a scene.

All the Pagodas are in a state of ruin or decay, or rapidly approaching to it, and broken fragments of the image of Gaudma lie strewn about, without any one attempting the restoration of him or his temple. The old Christian before mentioned, had taken forth his god years ago, and both broken, and deserted him on the high road side, where his remains were pointed out to us without either mark or expression as to any impropriety in such conduct, but contrariwise, the forlorn state of the poor idol excited laughter instead of commiseration. On a remarkable hill in the centre of the Island stands the principal Pagoda in the common ruinous state; no pious hand, had for many a year attempted to annihilate himself by its restoration; but whether in waggery or not, its chief ornament consisted of a cut glass decanter, turned bottom up, on a bamboo stuck into its pinnacle, and excited the laughter of our native party, as much as our own.

The Mugs are superstitious, and though by no means more deficient in personal courage than their Burmah neighbours, yet exhibit in some points a weakness, which might cause a doubt on this point. No Mug will travel alone in the dark, nor even on moonlight nights, for fear of evil spirits or Naths; but when together 'three Mugs will face the devil.' Nothing but positive order and accompaniment by us would induce them to trespass on many of the hill tops, which were inhabited, they said, by these demons, but with us not only would they advance fearlessly, but did not hesitate to fell the trees, though the blame of such sacrilege was always laid on us, in direct apostrophe to the supposed injured inhabitants. On felling any very large tree one of the party at work on it, was always ready prepared with a green sprig, which he ran and placed in the centre of the stump, the instant the tree fell, as a

propitiation to its spirit which had been dislodged so roughly, pleading at the same time the orders of the strangers for the work. In clearing the top of the South Hill, the Chupprassie, whom I had sent to see it done, though attended to the summit with the labourers all ready prepared, was forced to take a *dâh*, and fell the first tree himself, before a Mug would make a stroke, and was considered to bear all the odium of the work with the disturbed spirits, till our arrival relieved him of the burden. On such occasions, with their customary cheerfulness, the whole body would join in the laugh at the folly of their own superstitious fears, of which they latterly seemed half ashamed. Several of the circles are without any priest at all, and those who are found on the Island do not suffice for the instruction of the children, a subject complained of, and offering an opening of favour to these simple people, which has only to be afforded in order to be appreciated and embraced. Any person of any religion has only to assume the dress and follow the observances of the sacred book, and he is at once acknowledged a *bona fide* priest.

At Meugbreng an old priest paid me a visit, and begged alms, the only case I ever met with, and not only unnational, but most unpriestly; he avoided the prohibition to touch money by taking it through his yellow gown, and then handed it to an attendant pupil; he had been a Soogree in one adjoining circle, and gave up his office in order to get worshipped as he said. He was nearly 80 years old. No distinction of caste is recognized by their religion, and the priest both eats, and will accept the offering of all and every class. There exists however on the Mainland, some distinction of this sort, observed among the laity; they are the remains of the political quarrels and dissensions of the Mug Raj, and are fast wearing out. They consist in feelings of prejudice against the eating and drinking with those who are descendants from the captives of former wars, to whom the most menial offices were assigned; they have no existence on Chedooba, nor will have shortly elsewhere among the Mugs. The priests are forbidden even to look at women, even their eyes may not wander above a limited distance beyond their feet, lest they should light on the forbidden image; he may not eat after midday, when his second meal is taken, his first having preceded it about 6 hours. The dead are burnt, the bodies of priests with great pomp and ceremony, after being preserved a considerable time, and the bodies of all with decency; this constitutes a very meritorious deed when performed with the remains of a stranger.

Chedooba as observed, has not many strict votaries of Boodhism; but its effect in the neighbouring countries where acted on in strictness, is

curious in some particulars. It has a direct tendency to destroy all feeling of gratitude, the real favor conferred being on the part of the receiver, in the opportunity afforded by him to the giver of performing a meritorious act. Robbery and even murder have been committed for the sake of the means of erecting a church, or constructing a road, or a tank, and the end has consecrated the means. These good works are performed in Chedooba as elsewhere among Boodhism, but I was inclined to think with motives more pure, and that the general character of its inhabitants would justify the opinion, that the reward outwardly and inwardly reaped by the performance of such public benefactions, is inducement enough to their execution there.

The construction of such as above, of wells, traveller's houses, or the keeping of any of these in repair, renames the party undertaking them, and he is thenceforth only known by the honorable title of the 'well digger,' the 'road maker,' the 'house builder,' &c.

The old Christian above mentioned, is the only one on the Island, and is a sincere, and pious old man, deeply interested in the improvement, social and religious, of his Island countryman. He is intelligent and well informed for his means, of the mildest manners, and benevolent appearance; though between 75 and 76. His pittance is small, 5 rupees a month from the American Baptist Mission, of which he is an assistant; he is listened to with great attention and curiosity, but, unsupported as he is, and with but little encouragement, his success is small.

Ramree, the chief town of the Province, enjoys the privilege of a School, where English is taught, and Chedooba, as a part of the province, is entitled to send its quota of pupils. But the habits of the people, and even the regulations of the school, deprive its inhabitants of making almost any use of it. Payment is required; there may be no friends at Ramree to take charge of the children, and the Chedoobans are attached to their Island too much to allow willingly even their children to leave it for any length of time, very few parents, therefore, and those chiefly the Island authorities, give their children the benefit of the advantage offered by the provincial school. But the payment which is begrudged to the Ramree establishment, would be willingly made even in higher amount to one at home; both children and parents in Chedooba are all common friends, and mutually known; and such an establishment, which the deficiency of priests, for educational purposes, points out as wanted, would soon meet with that most grateful appreciation of the boon, a large attendance, nor in other respects would it be without reward to its founders. Not a whit behind his Ramree brother in intelligence and

desire to improve, and especial desire to learn English, the simpler, and more honest and moral character of the Chedooba scholar, would give to him the preference, for filling those grades of employment in the public offices open to him; while the grateful reflection would not be wanting, of affording a valuable means at once of improvement, and of the maintenance in fact from contamination, of a character high and rare, to perhaps the most interesting community under the Government of British India.

DIVISION VI.

Geology.

The Geology of Chedooba presents characters of so much general interest, that any report on this Island might be looked on as imperfect, in which the subject was wholly omitted.

But as it is intended in a separate notice to give such details, accompanied with specimens, as may render the subject capable of investigation, by those able and interested in the science; the present one will be here confined to a mere statement of the general features exhibited. The elevation, out of the sea, of large tracts of land by effect of volcanic action, has in more modern times been noted as occurring on the coast of Chili in South America, and in the territory of Cutch in this country. In the former case some doubt has been thrown both on the fact itself, as well as its amount; and the circumstance of a similar phenomenon having taken place within the memory of man, not only throughout the coasts of Chedooba, but extending over all the shoals and islands from the Terribles, off the north end of Ramree, to Foul Island, will be held a not unwelcome addition to the evidence yet gleaned of the occurrence of such extensive changes of level in the present day. The above are the limits of the survey on which the '*Childers*' has been employed, over every part of which the evidences of this elevation were seen, and in many places accurately measured, and it includes the whole of that irregular collection of Islands and shoals, which, projecting far into the Bay of Bengal, yet maintain the general direction of the main land coast near it.

But these limits are not to be taken as those which bound the elevation, which, with little doubt, from similarity of formation, will be found to extend north and south and east, over all these parts of Arracan, so peculiarly marked by the intersection of deep narrow, salt water creeks, from Akyab, even perhaps as far south as Cape Negrais.

The line which was under observation is about 100 miles in length, varying from 20 miles in width, to that of a mere patch, according as

opportunity of notice was afforded by the existence of rocks or islets above water, and its general direction is from N. W. b. N. to S. E. b. S. The elevation has been greatest towards the centre of the line examined; at the Terribles about 13 feet, on various parts of the N. W. reef of Chedooba 22 feet, at the north point of the Island 16 feet, at the centre of the Island on the west coast 13 feet, at the southern end 12, and at the Islands south of it, as far as Foul Island from that to 9 feet.

It would also seem to have been greater on the western limit of Chedooba, than on the eastern, a fact not however ascertained from the extensive level plains which exist on this side, whereas on that, measurement was easily made on the sides of perpendicular rocks. This elevation occurred about 90 years ago, and there is, now living, a party 106 years old, who was then 15 years of age, and had been accustomed to fish over a portion of the now upraised land. On the coasts of Chedooba, its traces are in most parts as clear as could be wished, bounding the natural jungle with a bank of greater or less height, composed of sand or of shingle—the plain beyond being thickly strewed with coral and shells, such as are now growing on the shore. The natives are all perfectly aware of the bank having formerly been the limit of their Island, and even the youngest would point it out, if asked to do so.

The old man above mentioned was not in Chedooba, but at Ava, when the event happened, he had gone thither that year, and experienced at that place the violent earthquake which accompanied the elevation. From other natives of great age, I received information of the occurrence, not direct, but traditionally from their parents.

The earthquake was very violent, the sea washed to and for several times with great fury, and then retired from the grounds, leaving an immense quantity of fish; the feasting on which is a favorite story throughout the Island; no lives were lost, no rents in the earth occurred, nor fire from the volcanoes of the Island.

The above is not the only event of the sort traditionally known, another occurred a century previous to it, and these elevations are considered periodical by the inhabitants, occurring every 100 years, and the next one is even expected in the course of a few years, and would excite but little surprise. Traces of a third beach line were several times thought to be found, before this information was given; but on the western coast, about half way down, an evidence of its truth was afforded; a remarkable column or rock, about 40 feet high, standing on the beach shewed the remains of a second line of rock. Oysters adhering to it, at an equal elevation of 13 feet above the first, as it was again, above the one, which on

all the rocks of the western coast distinctly points out the limit of the present high water. On Flat Island was subsequently found three distinct beaches, and the coral found on the different extents of the Island clearly proclaimed in their relative states of decomposition, the difference of their periods of exposure.

The external and more apparent means by which these great changes are effected, are as yet known, I believe, quite peculiar, and exhibit features which may be valuable in assisting investigation into the immediate causes of volcanic violence.

Every one of the mud volcanoes of Chedooba were visited, and examined as well as those of the neighbouring Islands, south of it, and on none with strictest search could be found any traces of direct fire, or of those peculiar formations produced by that agent, gas alone seems to be the one immediately occasioning these strange exceptions to the general character of volcanoes. It is no doubt inflammable gas, and the light given by some of them in activity has been so great as to enable a book to be read by it at a distance of 9 miles, as was credibly related to me as having occurred at the last eruption of the large Volcano of Meugbreng, the largest on the Island: that heat is present in the more recent ones, I found it myself to be the case, in one examined on Ramree, where the mud brought up on a bamboo from, 17 feet in depth, shewed a temperature of $92^{\circ} 20'$ above that of the atmosphere. But a white stone like chalk found on all the large volcanoes, which was considered as the common greenish sandstone discolored by heat, was the only substance found, which exhibited a trace of no intense heat, and in this case the abstraction of color alone was effected without the least change of composition or form. The large volcanoes of Chedooba are four in number, they are detached mounds rather than cones, varying from 100 to 1,000 feet above the level of the sea, composed of a stiff grey clay with large quantities of singular fragments of stone, their sides much cut up by the effects of rain, their summits quite bare, and from 240 to 50 yards in diameter; on these are disposed cones of stiff clay from a few inches to 4 feet in height, and the same variety of dimensions, in diameter. These are hard on the outside, but filled half way up with a thick well mixed mud, which every now and then exudes from a hole at the sides or summit*, at the bursting of a bubble of gas which occurs every 3 or 4 minutes. There are two other volcanoes of small dimensions, and but little elevated above the plains where they are found to exist; they are composed of the same

* The readers of the Journal will be struck with the similarity of the description to that of the mud pools at Hinglaj.—*As. Soc. Jour.* No. 94.

soil of mud, emitting large bubbles of gas; and besides these there are two spots whence water alone is brought up by the gas. In all these the water or mud is salt, and their number with the four Petroleum wells which are in constant ebullition with gaseous exhalation, seem to exhibit this agent as powerfully, and extensively at work, throughout the Island. The minor volcanic vents seldom exhibit any change; the larger ones when in eruption, which generally takes place during the rains, either throw forth to a considerable height accompanied with flame, fluid mud, which spreads over a certain extent, or the surface effected boils with the escapement of gas, bring too consistent to flow or be thrown up. The angular fragments of stone mixed with the mud are clearly torn from the strata, through which the vent is forced, and small portions of copper ore are found attached to some.

Besides the volcanoes seen, one was described as existing under water on what is now a reef N. W. of Flat Island, and which a few years since gave forth flame when in eruption. But independent of such direct evidence a mere examination of many of the reefs would convince of the fact of the bed of the sea being equally affected with the surface of the land.

I conclude with the observation that the clearness of the jungle of Chedooba, the healthiness of its climate, and the late clearing of the principal hill tops for purposes connected with its survey, afford for the ensuing fine season a most interesting ground whereon to examine, more minutely than either time or ability would enable me to do, the peculiar geological features thus briefly noticed.

Examination and analysis of a soil brought from the Island of Chedooba by Capt. HALSTEAD, of H. M. S. 'Childers,' by HENRY PIDDINGTON, Offg. Curator Museum Asiatic Society.

This soil was sent with a collection of soils and minerals from Chedooba, for the Museum of Economic Geology, with a request that a report might be made upon them. I was immediately struck with its resemblance to the finest Georgia Sea Island cotton soil which I analysed in 1838, and which has such a peculiar appearance—resembling a mixture of sand and charcoal—that it immediately attracts attention; I thought it well worth while to ascertain their identity. To show how nearly they are like I set down in parallel columns the results of my examination of the Chedooba soils and of the American one; the last abridged from my paper on the cotton soils of America, India, Mauritius &c. in vol. VI. of the Transactions Agrl. Soc. of India, p. 198.

APPEARANCES.

*American Soil.**Chedooba Soil.*

1. When sifted, like fine dark-
grey sand and charcoal dust, arti-
ficially mixed. } The same.

2. The sifting coarse sand, frag-
ments of sandstone and shells with
pieces of dried and charcoal wood,
or charcoal in all states from char-
coal to soft lignite. } The same, but no shells, and the
sandstone in very minute frag-
ments—perhaps owing to the spe-
cimen being in very small quan-
tity.

With cold water.

3. When agitated settles in a
coarse greenish-grey sand, with a
layer of black matter above it. } The same.

4. When left for a day or two
water is tinged of a pale yellowish
colour. } The same.

Heated in the Matrase.

5. Smokes and gives out a
strong peaty odour. Silver leaf
and litmus paper are discoloured
and a brown smoky-tasted oil is
deposited in the tube. } The same. The silver leaf I think
more discoloured; the litmus pa-
per not so immediately. In all
other respects the same.

Analysis gave

Saline matter, Mur. of lime and soda, but no po- tass.	0.20	Saline matter Mur. of lime and sulphur of soda, but no potass	
Vegetable matter: most- ly lignite or peaty powder with a little water.	3.20	The same	2.00
Iron, protoxide.	1.00	Protox. (and peroxide in small quantity ?)	1.75
Carbt. of lime	2.76	Carbt. lime	3.00
Alumina	0.20	Alumina	0.40
Silex	92.00	Silex	91.65
	99.15		99.05
Water and loss..	.15	Water and loss..	.95
	100.00		100.00

Remarks.

<p>Silex is mostly in coarse glittering grains like pounded loaf sugar, shewing that it is mostly from <i>disintegrated</i> and not decomposed rock.</p>	<p>The same, but grains of silex duller and more powdery, silex with them.</p>
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N. B.—The smell of Petroleum is owing to a bottle of it having been sent in the box.

For all agricultural purposes these soils may be pronounced so nearly the same, that, in the same climate, the difference would only lie in the amount of produce being a little more or less on the one than on the other. The Chedooba soil contains but one ingredient, Sulphate of Soda, not found in the American, but this is in extremely minute quantity, and moreover seems favourable to the growth of cotton, for the soil of the Tinnevely district, which produces the Madras, Bourbon cotton, contains it, as does also that of Singapore, on which very fine Bourbon cotton is grown.

Captain Halstead's remarks on this soil are as follows.

'No. 11, represents the more sandy soil of the eastern circles. It was taken from the neighbourhood of Meugbeng. The circle of that name with the one just noticed (Mrooma) are the most populous on the island, the greatest quantity of exports being produced in these, and chiefly on this soil—a more productive one than its appearance would seem to warrant.'

The importance of this curious soil to America we well know. It may be hoped that ours may be ere long turned to account and that many other spots on the islands and coast, from Akyab to Sandoway, may be found to possess it. From difference of climate, as far as this may affect the cotton, there will be, I trust, little to fear, for we know that the dry months allow time enough for the production of all kinds of cotton, some of very fine quality, on the main land of Arracan; and it is mentioned as a product of Chedooba by Captain Halstead. Very fine Sea Island has been produced on Saugor Island, and the late Mr. Kydd gave me a very beautiful sample of it, which he said was grown there 'upon a sort of black sandy soil' but I could not obtain a specimen of it. I venture to suggest that if a small quantity of the Sea Island seed was sent down to the Commissioner, accompanied with a brief notice, to be translated into the Mug language, and distributed with the seed, stating what it was, its great value when carefully picked, and that no sort of extra rent or claim would be made for this kind of cultivation, we might hear of it again? Small prizes might be offered to those who produced the best samples.

HENRY PIDDINGTON.

List of Soils and from whence taken.

1. Clay of upraised plain, near the N. W. point of the Island.
2. From Rua Tanghee inside the above plain.
3. From the N. W. peak.
4. From the West Hill.
5. From interior of Krae-roue circle.
6. From Eastern part of Krae-roue circle.
7. From Petroleum well of Krae-roue.
8. From West part of Inrooma circle.
9. From central valley of Inland (Inrooma circle.)
10. From Petroleum well of Inrooma circle.
11. From village of Meugbreng.
12. From interior of Meugbreng circle.
13. From Tang-roa circle near Rua Sekkea.
14. From the summit of Paga Hill.
15. From Ree-giung (Flat Island).
16. Iron ore from North beach of Chedooba.
17. Copper ore from different volcanoes of Chedooba.
18. Coal or lignite from Tang-roa circle.
19. Petroleum of Krae-roue.

It appeared advisable to attach to the accompanying selection of the soils of Chedooba, the few following observations on the subject in addition to the mere list of places whence each was procured.

In making the selection, which was done during a progress on the greater part of the Island, high and low, jungle and cultivated, and mostly on foot, from the 1st of January to the beginning of March, care was taken to choose soils which should represent those of the greatest extent to be found on the Island, and where specimens have been taken of soils less general, they have still existed over extents ample enough to afford room for the cultivation of that produce, for which they might be considered most applicable. But here it may be at once observed, that no material difference or contrast was found to exist in the soils of Chedooba; a clay of light brown or grey colour, more or less modified, as it had been subjected a longer or shorter period to the effects of tillage or natural vegetation, constituting the bases of all. This clay base being again on the eastern parts of the Island found with a large admixture of fine sand. This clay base seemed to give throughout a permanence to the productiveness of the soil, which must constitute a very valuable quality,

placing it on a par with those which if more fertile or sooner exhausted, from generation to generation the same lands being yearly cultivated without manure; traces of lands lying fallow it is true, were discoverable in many parts, and sometimes extensively, but on enquiry they proved to be those which had fallen out of cultivation from the decrease of population attendant on the disturbed state of all these countries for many tens of years previous to our occupation of them, and not from exhaustion of the productiveness of the soil. But the clayey nature of the soil appears to make it liable to yearly improvement by a process of manuring of natural occurrence, and which is most effective where most needed, in the newer soils of the lately upraised lands.

During the dry weather the surface of the soil becomes cracked in every direction to a considerable depth, but mostly so in the above lands, where a stiffer clay is found, and into these cracks dried leaves and grass at such times fall in considerable quantity.

A custom is also prevalent of burning the dry grass, stubble, &c., every year at the close of the dry season, the ashes from which are therefore all ready to be washed deep into the body of the soil, by the first heavy rains of the monsoon, which do not close the large openings for some time. The large quantities of Coral and Madrepora distributed over the surface of the new plains, is also by this practice of annually burning very much aided in its decomposition.

I was informed by a native that the extensive new plain of the N. W. part of the Island, which was raised out of the sea about 90 years ago, was only then acquiring its first covering of grass when visited by him 15 years after its elevation. That produce now covers most parts of it high and luxuriant enough to screen a buffaloe from sight, while other parts yield ample crops of rice, and where not otherwise claimed, the jungle is fast taking possession of it, especially over those more rocky portions which have on them the greatest amount of Coral.

The clay soil of this plain is shewn in No. 1, compartment. Embosomed in trees on the old N. W. point of Chedooba, and therefore just within the border of the above plain, stands the village of Tanghee, the soil of its neighbourhood includes a larger amount of vegetable mould, than is to be found in that of the plain so low as will be seen by the specimen of it in No. 2.

This soil may be taken as representing all the cultivated soils of the western part of the Island which lie within the limits of the old beach time. It amply repays all labour bestowed on it, though such labour is at present small, owing to the smaller amount of population to be found in

the two circles of Kam-mad, and Tang-wa, which enclose this side of the Island, than in any of the others with one exception; this want of population arises from other causes than any connected with want of productiveness in the soil.

Chedooba was originally peopled from the eastward, and has never been so thickly inhabited, as to oblige the cultivation of the western lands, which have therefore been hitherto visited, more than inhabited, the want of gratification for his social habits always driving the western settler, after a certain period of sojourn back again to his more thickly populated native village to the eastward. The present Rua-gong of the village of Kammaa was formerly Soogree over but seven houses, in a district where his own village now numbers 300.

The extent of plain between the hills and the sea, half way down the west side of the Island is small, but I here saw one of the largest and richest gardens of plaintains in the whole Island, while as the general produce of the above soil along the limits mentioned. I observed, rice (the staple) tobacco, sugar cane, some cotton, hemp, and indigo (in cleared spots in the jungle); of fruits and vegetables, the cocoanut, plantain, orange, lime, tamarind, yam, bringals, and other garden produce of these climates.

The specimens in 3 and 4, represent the soil found generally in the hilly, and jungly parts of the Island. The largest and most luxuriant trees in the Island are found in the loose friable soil which is found on all the hill tops, in that of No. 4 were flourishing perhaps the very largest on the Island. An oil tree felled measured for a length of 60 feet, 4 feet 6 inches, and 3 feet 6 inches in diameter at its respective ends, and a like tree left as a beacon, on the summit of the hill, measured 21 feet 4 inches in girth, as high as the arm could reach.

In mentioning however the size of these trees, it is not to be inferred that valuable timber is to be looked for as a produce of Chedooba. The largest trees are almost exclusively confined to the hill tops, where they are difficult of access, and of no very valuable quantity, enough however, and of sufficient size, and good quality for all domestic purposes, is every where to be found, nor do I doubt that woods, affording valuable produce of different kinds, would on examination be found among the jungles. The wood-oil tree as has been observed, was found in luxuriance on the west hill, where was also the gamboge, and many trees large and small yielding caoutchouc, some in great profusion. I would here mention while on the subject of the jungles, that no part, in the many miles of it, travelled through, appeared to offer any serious ob-

stacle to clearing for cultivation ; there are few parts where a Mug with a good dáh would not fell in one day the trees over half an acre ; much of it consists of open clumps of bamboo, and throughout the lower part, open plains of grass of more or less extent are very frequent ; in no part which was seen would a person on foot find any obstruction in walking which way he would, and this is stated from experiment, having been over many parts where no native ever before penetrated, not from inability but from superstitious fear.

No. 5 and 6 represent generally the soil of the Krae-roue circle, the Northern one of the Island of which parts are more sandy than others, but the whole very productive. I found the betel in this circle first, and in its jungle, of which it has a due share, the caoutchouc plant of South America ; a good deal of Rice for export is here grown.

No. 7 is a soil taken from the neighbourhood of two Petroleum wells, which lie close to one another in this circle, having no doubt one common source of supply. This article, as may be seen, is surely a produce of the soil, which by simplest means might greatly be increased ; at present these two wells yield about half of the 300 pots, which constitutes the yearly produce of the four petroleum wells of Chedooba.

No. 8 is a soil taken from the next adjoining circle, eastward to that of 'Inrooma.' Its principal village (Chedooba) boasting to be the capital of the Island. The specimen, and No. 5 may be taken to represent the interior and more clayey soils of all the Eastern circles, including those of Inrooma, Meugbreng, Kyouk-tair, and the eastern part of Tang-rua. While No. 9 taken from a spot in the same circle, is, I apprehend of more limited extent.

Near the centre of the Island, and not far from the large Volcanoes of Meng-breng we came on a small level valley with a stream running through it, on either hand overlooked by wooded hills. This valley whence No. 9 is taken, was the best cultivated spot I had yet found, being one continued tobacco garden and were the best of that plant on the Island is produced. While speaking of this article, I venture to express by belief that parts of Chedooba would produce with proper care and attention, as good tobacco as perhaps any in the world ; and here I speak also from experience. My own stock of Cigars having been expended, I procured some to be made for me on the Island, out of native tobacco, many of which to my gratification and surprize I found of as high and as delicate a flavour as any which I had ever tasted direct from the Havanna. But the leaves of which these were formed, appeared to be accidentally larger and more ripe than they are generally gathered. Though as it is at present planted and prepared. Chedooba tobacco is highly prized.

No. 10, shews the soil from the neighbourhood of a petroleum well in this circle (Inrooma). Some time since it was destroyed by fire, since which the public claim it, but its produce is therefore nothing, though the soil is full of the oil.

No. 11, represents the more sandy soil of the eastern circles. It was taken from the neighbourhood of Mengbreng. The circle of that name, with the one just noticed (Inrooma) are the most populous on the Island the greatest quantity of export rice being produced in these, and chiefly in this soil,—a more productive one than appearances would seem to warrant.

No. 12, is also a soil of the Mengbreng circle, and taken from a spot about 3 miles W. S. W. of the village of that name, and amid the jungle. It may not be put forward as a representative, though in the neighbourhood whence taken, it may be extensive. The largest trees were found on the lower grounds principally; the wild mango were found growing in this soil.

No. 13, from the Tangee, a circle and neighbourhood of the village of Tekkea, at the foot of the south peak, is again a soil peculiar as far as was observed. East and west of it the cultivated soils are represented by No. 2, while Nos. 3 and 4, perform the same office for the soils of the hills which are highest in this the southern circle of the Island.

No. 14, is a specimen of the most peculiar soil on Chedooba, taken from its only barren spot, the higher parts of its central hill.

No. 15, is not of Chedooba at all, but from its sort of dependency, Flat Island, separated from it by a narrow strait. It has been added from its great similarity to the stiff clay of No. 1, whose productive properties it may serve perhaps to illustrate.

It was taken from the centre of the Island where it had been under constant cultivation for more than one century, yielding an ample annual return. Every patch of available land on this Island is fully tilled, its centre, one continued rice ground.

Nodules of Iron ore, as in No. 16, will on search be found generally over the Island, either embedded in the greenish sandstone, or having been detached from it. Though often very rich, they are not in sufficient quantities to amount to valuable, nor am I of opinion that the ore in continuous beds will by any search be discovered.

No. 17, shews some fragments of copper ore, a few also of silver may be found, but both are confined to the surface of the volcanoes in the Island, and have been ejected by them from beneath. Even on these sites a strict search is necessary to detect them. I only heard of one piece of the size of two eggs having ever been found.

The 18th compartment shews specimens of a coal or lignite found in the northern parts of Tang-wa circle, and not a mile distant from the beach. It lies a few feet above the level of the watercourse formed between the first and second lines of hills, dipping deeply under the latter, which rise 800 or 1,000 feet above it. Its site is therefore I fear a very bad one; perhaps a matter of no great moment as its qualities I also fear partake of the same character. It is traceable in an east and west direction about 20 yards, the vein, 3 feet and a half thick, is a series of small layers from the 16th part of an inch to 3 inches in thickness, separated by their laminæ of ferruginous sand. It has been dug into by the natives, and perhaps two tons of it excavated, from which the specimens shewn were selected. On the spot, I could not make it ignite, it only smouldered.

No. 19, shews a specimen of the Petroleum of the wells of Krae-roue.

As it may not be considered a matter very foreign to the subject under notice, and is inserted in furtherance of the same view, that of, it may be, usefulness to any concerned. I venture to conclude with a slight notice of what I experienced of the climate of Chedooba in traversing it, throughout all parts from the beginning of January to the middle of March, 1841; a period which no doubt constituted, with the previous month of December, the healthiest time on the Arracan Coast, or at least when exposure to weather may best be borne by the European. As is the case in all countries subject to periodical rains, the time of commencement, and taking off of these, will also here be doubtless found the most unhealthy.

But previous to the arrival of the Monsoon, I think that, to all Europeans, exposure to the direct rays of the sun, (often done incautiously or unnecessarily) would be found almost a certain cause of illness, and this more particularly during the months of March, April, and May, when its heat is most violent. But exposure of the above sort must at all times, I think, be deemed highly imprudent, especially when the remedy of a chattah is so easily procured.

This effect may be constitutional and peculiar, but I am inclined to think, that any exercise in the climate of these parts requires for its support good generous food. In the 65th Regiment N. I., while on the coast for nearly two years, mortality from fever among the troops was fearful in amount, among the officers no case of fever occurred. I do attribute the contrast to the difference of living, in which the statement made to me by the Medical Officers and others of that Regiment seems to bear me out, viz., that the troops died from the consequences, more than the fever itself, that in spite of all cordial and strengthening food, and

medicines liberally administered, there was not stamina in their constitution to enable them to rally from the debilitating effects of the disease.

In the course of our duty in surveying along the coast, considerable exposure was necessarily made of the crew of the 'Childers.' On all such occasions it was as much as possible endeavoured to give the people extra food, and quinine was also administered, in fact, throughout the service, every exertion was made to procure as much and as great changes of diet as circumstances would permit. Up to this date, March 24th, twenty-seven cases of fever have occurred; (12th of May, 63) cases on board, all of the same debilitating nature; but, with the exception of one, under peculiar circumstances, which proved fatal, all were recovered, and in general at duty again in 7 days.

I believe that my own experience of the shore climate was far greater than that of any one else among us. But I have reason to be thankful that, though occasionally unwell, I did not suffer from a headache throughout my whole visit.

Next to the two precautions which may be inferred from what has been said, viz. those of keeping from direct exposure to the sun; and a generous—not intemperate—diet. I would mention the necessity of watching and preparing for the great changes of temperature to which the climate is liable; while by day the lightest clothing was too heavy, by night it has been chill under two blankets and a counterpane. An hour before sunset this change takes place, and should always be met by a change to woollen clothing; last, not least, I mention the necessity of keeping a careful watch over the due and regular performance of the digestive functions. Under employment for mind and body, with the above cautions, viz. avoiding undue exposure; good—but temperate living; accommodation to changes of temperature; attention to regularity of digestion, I incline to think that Chedooba, if not Arracan generally, would be found not so fatal a climate to Europeans as has been hitherto supposed.

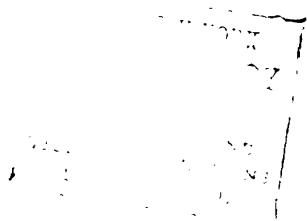
With regard to the effect of climate on the natives, I would observe firstly, that in the course of their employment for objects connected with the survey, there are few of the able bodied males on the Island whom I had not under personal observation. A small, but well made, active, intelligent race, most cheerful and enduring of fatigue (when obliged to it). In my journeying through the Island, at every village (and few if any were not visited) all ailments were made subjects of application for advice or medicine. These cases amounted to two of fever, one of dropsy, one of paralysis, one of blindness, and one of deformity of limbs. Three cases of fever also occurred among the native (Bengallee) attendants who were with me.

But it may be fair perhaps to increase the apparently small list, by the admission that there exists a disease to a considerable extent, to which the inhabitants of Chedooba are subject, and under which at every village we found perhaps many sufferers, women as well as men, but chiefly the latter; nor in any case though always coming forth to meet us, did it seem to be looked on by either the parties themselves, or their friends as a case on which to apply for commiseration or relief.

'Old age' is very prevalent on the Is'and, and but few of the villages of Chedooba but can produce more than one, often several, of their inhabitants labouring under the affection of four score years or upwards; many under such burthen, hale, almost vi.orous, in mind and body. The party who informed me of the period taken for the clothing of the N. W. plain with verdure, and who had till 15 years old been in the habit of fishing over it, when under the Sea, with his father by name Pallaree, and living in the Inrooma circle, is generally looked on as the senior amongst these 'Appogee' (a respectful term of address to old people). He claimed to have run through 106 years, at which age he walked 12 or 13 miles in order to meet us, and on being disappointed then walked back again (not I believe the same day); when we did meet, it was after a walk of nearly two miles, when he was certainly in body, rather shakey, but after a short rest he recovered himself perfectly. His mind and memory were perfectly sound, as also his hearing, and sight, his speech very slow, but clear and distinct; not a tooth in his head was gone or apparently inclined to depart, and he was not only cheerful, but joking with all around. He ridiculed my not being so old as his great-grandson, who accompanied him, said that he had left off eating animal food but two years since, and when questioned as to what had been his customary food in ages by-gone, answered readily 'any thing even a part of a man if I had wanted it,' a confession which he only modified, to the laughter and remark of the party around, by adding 'if it had been given as medicine,' I know not whether it may be taken as evidence of the existence, to any considerable extent, of another interesting disease in Chedooba, to add that Pallaree, entered into the bonds of matrimony with his last wife 2 years ago.

(Sd.) C. P. HALSTED,
Commander.

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Report on the Soils brought from Chedooba, by H. M. S. 'CHILDERS.'
By the Officiating Curator, Mus. As. Sco.

The box of Soils and Minerals, brought by Capt. Halsted, having been referred to me for report, I take leave to subjoin the following remarks to Captain Halsted's very able notes. He has, most unfortunately, omitted to bring us specimens, of the different *rocks* as well as of the soils. It would have been highly desirable to have had a complete series of these, from the beach lines to the highest point, and in various directions, with as many shells and other organic remains, as could be found, and measurements of elevation; especially those of the 'old beach lines' alluded to by Captain Halsted. Such a series if it can be still obtained, would be of the greatest interest, for we have there an active volcano in the centre of an Island, upheavements going on on the Coast within the memory of man, and coal found; all within the space of a few miles! I need not say how valuable rocks and organic remains would be to illustrate all this.

In the absence of any geological data then my remarks must be mostly agronomical, as regards the soils, and mineralogical in regard to the minerals. I take them in the order in which Captain Halsted has numbered them.

No. 1. Of this little or nothing can be said in addition to Captain Halsted's remarks. The process of natural manuring, to which he alludes is not however, I should think, the sole cause of the fertility of the soils. It will be seen upon close inspection, particularly with a magnifier, that minute particles of carbonaceous matter are dispersed throughout the mass as if they had been originally deposited with the soil, by whatever process this was formed; the one described by Captain Halsted would scarcely we may suppose have distributed it so evenly, but a more extended examination on the spot, could alone entitle us to argue safely on the subject which is one of much importance. No 15, is a soil of the same kind, and it has also some, though a smaller, mixture of carbonaceous matter dispersed through it: both appear to be surface soils only.

No. 2 and 3, are more sandy. No. 3, seems to contain some carbonaceous matter also.

No. 4. Remarkably assimilates to the tea soils of Assam and China, in appearance! and like those of Assam this also occupies the higher spots. As the climate and population of Chedooba probably place tea out

of the question, as a product, I have not thought it worth while, to institute any closer examination.

No. 5. Contains, apparently, a portion of carbonaceous matter.

No. 6. Does not shew any trace of it.

No. 7. Is a very curious soil, if of any extent, on account of its locality in the neighbourhood of the petroleum wells. Captain Halsted does not say if these soils are fertile or barren, which it would be of interest to know; vegetable matter, in the shape of leaves and roots, abound in the specimen. As No. 14, is said to be 'the only barren spot' so that we may suppose this was not wanting in fertility. Nos. 10 and 12, much resemble No. 7. in appearance, though they are not so strongly impregnated with petroleum.

Nos. 8 and 9. As tobacco soils probably owe their superiority to the free peroxide of iron dispersed through them in veins and spots.

No. 11. Is identical with the best Georgian Sea Island cotton soil. I must refer here to my special report on this soil :

No. 13. Is remarkable as being the only soil which offers any sensible proportion of free calcareous matter in the shape of *debris* of shells ; and here again we have to regret the want of the rocks, for these would have assisted us in forming a judgment as to whether the soils have been formed from their decomposition, or in horizontal beds and raised up with the Island. We have here a succession of strata through which the volcano may have forced its way without much disturbance? or which may have been raised up so as to shew its edges in overlying beds? Which should then correspond round the volcanic centre; or which may have been formed by the eruptions? All these are curious questions for investigation, and it is to be hoped will not long be left unexamined.

No. 14. 'The only barren spot on the Island' says Capt. Halsted 'being the highest part of the central hill,' I could not on examination detect any saline or acid impregnation in this soil, and I should take its barrenness, in the absence of any gaseous exhalations, which are no where noticed in the report, to be owing to the great quantity of peroxide of iron which it contains, so much indeed that it is almost a red ochre.

No. 15. I have already referred to above.

Minerals.

No. 16. Is sent as iron ore. It is merely composed of masses of amorphous iron pyrites, and wholly useless as an ore of iron.

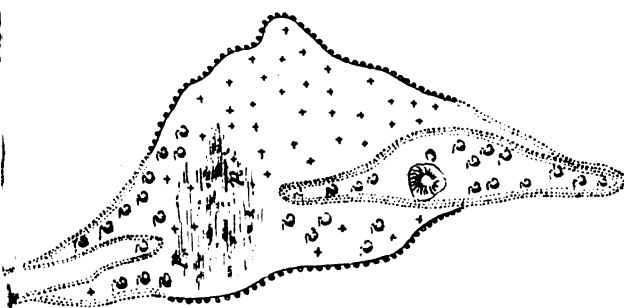
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Plan of Meynaim

by

J. H. McCallum, R. N.
J. W. King, "Children"
1841

Compass North



Represents the beach of the land subsequently raised, this
mount from which issues a quantity of petroleum. The
rich surrounds it and also the one further Southward were
large masses of coral and of other rock; they completely cover
with the exception of a slight sprinkling near the stream bet

er.
not above the sea.

No. 17. Is also unfortunately not copper ore, but cubical iron pyrites, containing no trace of copper, and quite valueless, unless it be abundant enough to smelt for its sulphur where fuel and labour are cheap. The mass of silver ore alluded to by Capt. H. was probably a lump of the white kind of pyrites.

The coal I should think promises well, judging from these specimens at the out-crop of a seam. It is bituminous, though not highly so, and I found also its Sp. Grav: to be 1.31, which is that of the best Burdwan coal. Its appearance and the fracture of some of the specimens are also in its favour, but any opinion would be premature till we have samples from a greater depth.

The petroleum does not call for any remark.

H. PIDDINGTON.

Illustrations of the Genera of the Bovinæ.—Part I. Skeletons of Bos, Bibos and Bison, the individuals examined being the Common Bull of Nepal, the Gowri Gao of Nepal and the Yak.

Bos and Bibos, resemble one another in the general formation of the trunk, and in having each 13 pairs of ribs, and 6 Lumbar vertebræ. In both, the ribs, from the 5th pair inclusive, bulge outwards gradually to the 13th which are the farthest apart. In Bisonus, on the contrary, all the ribs are much straighter; the first 6 pairs diverging very little more from the perpendicular than in a horse; from the 7th to the 10th pair inclusive, the bulging is greatest; the latter pair being the farthest apart, whence to the 14th they rather approximate, the last pair being nearer one another than the intermediate ones. This gives a cervine character to the trunk of Bisonus. In Bisonus 14 pairs of ribs, and only 5 Lumbar Vertebræ, making an equal number of Vertebræ, in all 3 animals.

The differences between Bos and Bibos, are as follows. The spinous process of the Dorsal Vertebræ in Bibos from the 3d to the 5th inclusive are of equal length, with a very gradual shortening of the others to the 10th which is 2 inches longer than the 11th, and the 12th is two inches shorter than the 11th. The droop towards the loins from the greatly elevated spinal crest of Bibos is so sudden, that in one specimen in which the spinous process of the 10th vertebra measured 10½ inches, that of the 13th was only 5 inches. In Bos, the 3d spinous process is the longest whence the droop commences, the dorsal spines gradually shortening until the 10th, whence to the 13th they are not longer than those of the

Lumbar vertebræ. The Humerus in *Bos*, compared with the fore arm is somewhat shorter than in *Bibos*. The carpus and canon united, compared with the fore arm is shorter in *Bibos* than in *Bos*.

The following comparative peculiarities in all these animals present themselves:—

The skull and horns are greatly heavier in *Bibos* than in *Bos* or *Bisonus*. The forehead of *Bibos* is at first sight hollow, but is actually flat; the concave appearance being derived from a great transverse arch of bone which surmounts the face; projecting forwards in some degree, but its direction taken along the convexity parallel with the centre of the horns' cores. The orbit in *Bibos* projects more than in *Bos*, or *Bisonus*: the nasal bones are *most* arched (transversely) in *Bibos*, *least* so in *Bos*. The face—from anterior margin of orbits to muzzle—*longest* in *Bisonus*, about *equal* in *Bos* and *Bibos*. In *Bisonus* the forehead above the orbits, is transversely arched, in *Bos* it is quite flat. In *Bos*, placing the muzzle on the ground, the parieto-frontal junction is flush with the superior aspect of roots of the horns' cores. In *Bisonus*, placing the skull similarly—the superior portion of the frontal bones is, for about an inch and a half on each side, on a line with superior aspect of roots of horn cores; the medial portions and frontals are considerably elevated, forming a central truncated cone between the two portions already noted as being on a line with superior aspect of root of horn cores. In *Bibos* again, the skull disposed as above, a large bony arch protruding so as to overhang the forehead runs across from horn to horn, the arch commencing at once from their roots. Viewing the three skulls from the superior margin of the intercornual space, (skulls placed as before with muzzles on the ground) to the foramina magna, the following differences appear so remarkable in *Bibos*, as to be alone eminently fitted for at once distinguishing it from the others. In *Bos*, the entire space from the superior margin of the foramen magnum, to the intercornual crest of the frontals, is occupied by the insertions of the nuchal muscles, and it is nearly square (trapezium.) In *Bisonus*, the same space is an equilateral triangle, and divided into two separate parts. 1st. The truly occipital portion, into the whole of which the nuchal muscles are inserted, formed *anteriorly* (the muzzle on the ground) by a slightly arched line drawn between the posterior margins of the bases of the horn cores; and *posteriorly* by the superior margin of the foramen magnum. 2nd. The parieto-frontal portion, of a triangular shape, free from muscular insertions, only $\frac{1}{4}$ th the extent of the 1st portion, and forming the apex of the larger triangle.

In Bibos, the same space (or postea aspect of the skull) is of a spheroidal shape, deeply indented about its centre by the temporal fossæ, thus dividing it into two nearly equal hemispherical portions, viz., the anterior and larger one formed entirely by the great intercornual crest, and free from the insertions of nuchal muscles and ligaments, and the posterior or truly occipital portion, occupied wholly by the insertions of the neck muscles. The size of the intercornual crest in Bibos is so great that the postea aspect of the skull equals in extent the antea one, bounding the latter inferiorly by a line drawn across the face from the centre of the orbits. Leaving the skulls, the following are the comparative differences in the trunk of these three animals.

The great developement both in elevation and extent of the spinous ridge in Bibos, at once distinguishes this animal from Bos and Bisonus. In Bos the greatest elevation, much inferior in height, is confined to the spinous process of one vertebra (the 3rd) whence the declension is uniform to the 10th. In Bibos the extreme elevation is extended to three of the spinous processes (the 3rd, 4th and 5th), and considerable elevation prolonged to the 11th. In Bisonus again, which occupies a middle station between Bos and Bibos in regard to *extensive* developement of the spines, the extreme elevation, great in height as compared with Bos, is confined to one spine, whence the declension is more sudden than in Bibos, but less so than in Bos. These differences in the skeletons are manifested in the living animal thus: in Bos the rise from the neck to the greatest elevation of the spinous processes is most gradual, the highest point being between the scapula, with declension thence gradual and uniform. In Bibos the rise from the neck is more abrupt than in Bos, and the declension very gradual until near the loins (at 10th Vertebra), whence to level of loins very sudden indeed, giving the animal an appearance of disproportioned smallness in its hinder extremities. In Bisonus the rise from the neck is most abrupt, and confined as in Bos to the shoulders, or rather entirely to the withers, whence the droop is more gradual and uniform than in Bibos, but less so than in Bos.

In detail these appearances arise from the following state of spinous process. In Bos the first spinous process is only 2-3ds the length of the 2nd. In Bibos the 1st spine is to 2nd as 7 to 8. In Bisonus the 1st spine (dorsal) is of extraordinary length and only perceptibly shorter than 2nd one, which is the longest of all, whereas in Bos and Bibos the 3rd is the longest.

Summary of Osteological Characters as noted above.

Bos.—Dorsal Vertebrae and Ribs 13; Lumbar Vertebrae 6; Ribs laterally bulging from the sixth pair giving great expansion of costal region;

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transverse processes of Lumbar Vertebrae long and strong, spinous process of this not specially developed: the 3rd Dorsal Vertebra the longest, whence a gradual and uniform shortening of spinous processes to 10th, which is not longer than those of Lumbar, Metacarpal bone (Canon) long, ditto Metatarsus, forehead flat, nasal bones obtusely arched; facial portion of skull (all below the orbits) longer than in *Bibos*, shorter than in *Bisonus*, or *Bubalus*, in which longest of all. Intercornual space scarcely arched; skull less massive than in *Bibos*, more so than in *Bisonus*; Postal aspect of skull square and smaller compared to forehead (all above orbits) than in *Bisonus*, greatly so than in *Bibos*.

Bibos.—Skull deep, broad, and very massive, an elevated massive and protruding intercornual crest, overhanging the forehead nasal bones, longitudinally arched (especially in the male), giving along with the protruding intercornual crest, a hollow appearance to the forehead. Postal aspect of skull as extensive as the forehead. Horns of great thickness, short and invested over their intermediate crest. Ribs and Dorsal Vertebrae 13; Lumbar 6; lateral processes of Lumbar, less developed than in *Bos*, more so than in *Bisonus*. Ribs laterally bulging as in *Bos*—if any difference less so. Metacarpus (Canon bone) and Metatarsus shorter than in *Bos*, longer than in *Bisonus*. Spinous ridge greatly developed both in altitude and in extent—the processes continuing of great length to the 11th. They exceed those in *Bos*, even in a greater degree, than the massiveness of skull and horns would indicate.

Bisonus.—Dorsal Vertebrae and Ribs 14—Lumbar 5—Ribs straight, and costal cavity compressed and cervine compared with *Bos* and *Bibos*. Spinous ridge greatly developed anteriorly, but less protracted in extent and declining (from 3d spinous process) more abruptly than in *Bibos*. Skull less massive than in *Bos* or *Bibos*, facial portion longer and more finely tapering. Superior portion of forehead transversely arched. Intercornual space centrally elevated, viewed anteriorly, this portion is a truncated cone, postal aspect of skull triangular, more extensive than in *Bos*, but greatly less so than in *Bibos*. Metatarsus and Metacarpus, shorter than in *Bibos* or *Bos*.

Remarks.—The character of the limbs in *Bos*, indicate the greatest degree of locomotive speed, and the development of the Lumbar region, promises the greatest burden-bearing power. The cervine character of costal region in *Bisonus* may, in locomotive energy compensate the longer canon bone, and Metatarsus of *Bos*, nor is it improbable, that the additional pair of ribs in the same animal, by adding to his length of barrel and shortness of loins, may compensate to him the greater indications of strength in the Lumbar region of *Bos*.

P. S.—Since writing the above I have seen the skulls of a male and female Gayal from Sylhet. The face is flat, the intercornual space is flush as in *Bos*; the horns are somewhat triangular at their base, tapering to a sharp point, dark green, about $4\frac{1}{2}$ feet apart at the apices, and laterally diverging from their base. The Gayal, Mr. Hodgson informs me, has 13 Ribs: its head it indisputably Bovine, much more so than in Bibos.

A. C.*

Part II. Craniology of Bibos, Bison and Bubalus, the subjects of examination being the Gouri Gao, the Gayal, the Yak and the Arna.

Adverting to the annexed table of admeasurements, I proceed to remark upon the several skulls:

Dimensions and weight of the skulls and horns of Bibos Cavifrons (1), Bos Gavæus (2), Bisonus Poephagus or the Yak (3), and Bubalus Arna (4), Common Domestic Bull of Mepal (5), 6, 7 fam of 1 and 2.

	1.	2.	3.	4.	5.	6.	7.
Length from Symph: intermax: to crown of forehead,	1 10 $\frac{1}{2}$	1 7 $\frac{1}{2}$	1 7 0	1 11 $\frac{1}{2}$	1 5 0	1 8 $\frac{1}{2}$	0 5 $\frac{1}{2}$
Greatest height,	1 3 $\frac{1}{2}$	1 1 0	0 9 $\frac{1}{2}$	1 2 0	0 9 $\frac{1}{2}$	1 0 $\frac{1}{2}$	1 0 0
Greatest width of frontals between the orbits,	0 11 0	0 10 0	0 9 0	0 8 $\frac{1}{2}$	0 7 $\frac{1}{2}$	0 8 $\frac{1}{2}$	0 8 $\frac{1}{2}$
Least ditto ditto,	0 8 $\frac{1}{2}$	0 7 $\frac{1}{2}$	0 7 0	0 6 0	0 6 $\frac{1}{2}$	0 6 $\frac{1}{2}$	0 6 $\frac{1}{2}$
Greatest width of frontals between antea and inferior bases of horns,	1 2 0	1 1 $\frac{1}{2}$	0 10 0	0 10 0	0 7 $\frac{1}{2}$	0 11 $\frac{1}{2}$	0 1 0
Height or length of postea plane of skull from lower edge of foram: condyles to crest of forehead,	0 11 0	0 8 0	0 6 0	0 8 0	0 5 $\frac{1}{2}$	less	less
Length of frontals from line drawn through mid orbits to crest of forehead,	0 9 $\frac{1}{2}$	0 8 $\frac{1}{2}$	0 6 $\frac{1}{2}$	0 7 $\frac{1}{2}$	0 6 $\frac{1}{2}$	0 8 $\frac{1}{2}$	0 7 $\frac{1}{2}$
Length of Nasals,	0 10 0	0 6 $\frac{1}{2}$	0 7 $\frac{1}{2}$	0 10 $\frac{1}{2}$	0 7 0	0 8 $\frac{1}{2}$	0 5 $\frac{1}{2}$
Greatest breadth at Muzzle (intermaxill:),	0 4 $\frac{1}{2}$	0 3 $\frac{1}{2}$	0 3 $\frac{1}{2}$	0 4 $\frac{1}{2}$	0 3 $\frac{1}{2}$	0 3 $\frac{1}{2}$	0 3 $\frac{1}{2}$
Diameter of orbits,	0 2 $\frac{1}{2}$	0 2 $\frac{1}{2}$	0 2 $\frac{1}{2}$	0 2 $\frac{1}{2}$	0 2 $\frac{1}{2}$	0 2 $\frac{1}{2}$	0 2 $\frac{1}{2}$
Symphysis of intermaxill: to inferior edge of the orbits,	0 11 $\frac{1}{2}$	0 10 0	1 0 0	1 2 0	0 10 0	0 11 0	0 9 $\frac{1}{2}$
Thence to bases of horn,	0 6 0	0 5 $\frac{1}{2}$	0 4 $\frac{1}{2}$	0 5 0	0 5 $\frac{1}{2}$	0 6 $\frac{1}{2}$	0 5 $\frac{1}{2}$
Basal circuit of the horns, ..	1 6 $\frac{1}{2}$	1 5 0	0 10 $\frac{1}{2}$	1 7 0	0 8 $\frac{1}{2}$	1 1 0	1 1 0
Terminal interval of horns, ..	1 8 0	2 10 $\frac{1}{2}$	1 3 $\frac{1}{2}$	1 9 0	1 7 0	0 8 0	1 9 0
Greatest interval of ditto, ..	2 1 $\frac{1}{2}$	2 10 $\frac{1}{2}$	1 7 0	3 0 0	1 7 0	1 3 $\frac{1}{2}$	1 9 0
Length of horns greatest by outer curve,	1 10 0	1 8 0	1 5 0	4 4 0	0 9 $\frac{1}{2}$	1 5 0	1 3 0
Weight of skulls and horns, ..	30 lbs. 8 oz.	17 8 0	15 8 0	27 0 0	9 $\frac{1}{2}$ lbs.	15 $\frac{1}{2}$ lbs.	10 $\frac{1}{2}$ lbs.
Length of face from Symph: intermaxill: to lower edge of orbits,	0 11 $\frac{1}{2}$	0 9 $\frac{1}{2}$	0 11 $\frac{1}{2}$	1 2 $\frac{1}{2}$	0 10 0	0 0 0	0 0 0
Length of forehead from lower edge of orbits to crown of frontals,	0 11 $\frac{1}{2}$	0 9 0	0 7 $\frac{1}{2}$	0 9 $\frac{1}{2}$	0 8 0	0 0 0	0 0 0

* These initials indicate the work of Dr. Campbell of Darjeeling, formerly my assistant, and who was kind enough to afford me his aid on this, as on various other occasions.

The prime characteristics of No. 1, or the skull of the Gouri, are enormous size, (above a third greater than that of the ox); more than proportionate massiveness or weight (being treble that of the ox); and lastly, great breadth, without marked deficiency of correspondent height or length. The greatest width of the frontals, between the extreme bases of the horns, is to the length as 14 to 9½; but the greatest width between the extreme margins of the orbits is to the length only as 11 to 9½. At first sight the frontals, *exclusive of their crest*, look flat; but they are really somewhat concave, and that, as well across between the very salient orbits, as longitudinally between the arched nasals, and the commencement of their own crest. That crest is most remarkable: it occupies the whole breadth of the bases of the horns and ascends nearly 2 inches above them, in a bold transverse arch. From the plane of the forehead it rises with a slight declination backwards, has a round edge on the crest, and thence falls perpendicularly upon the parallel plane of the occiput of which it constitutes (with the entirely merged parietes) above one half. The postcal plate of the skull thus becomes of an extreme size, being in depth to the lower edge of the condyles of the great foramen, longer or deeper, than the antecal plane of the frontals, great as the latter is. Another feature of the postcal plane is the very deep indentation of the temporal fossæ, which cut half in two the superior, pseudo-occipital or cristate, and the inferior or truly occipital portions of the postcal plane.

Of the trigonal ridge, which, in the Bisons, bounds superiorly the parietals, there is no trace, and very little of the true transverse ridge of the occiput which commonly limits the parietes inferiorly. With regard to shape, the occipital plane is neither square or semi-circular, but rather! if you *exclude* the interruption made by the temporal fossæ, spheroidal between the incurved salient alæ of the condyles below, and the bold transverse arcuation of the crest above; and if you *include* that interruption, bi-elliptic or composed of two oblate rounded figures of an ovoid or elliptical outline, and lying, one above the other, transversely to the skull, the upper or pseudo-occipital portion being the larger. The facial portion of the skull is equal in length to the frontal portion: the orbits are very salient and cervine, with rapid contraction of the head's breadth before them towards the nasals, which are of ample length and exhibit an arched form both lengthwise and across. The breadth of the intermaxillaries is moderate, in the position of the muzzle, which in the living animal is small; and though the nasals are produced much to the front, yet the lateral solution of continuity in the bones towards the malars

(the intermaxillaries not reaching the bones of the nose at all) is ample ; and this, with the convexity of those bones, leaves abundant space for the olfactory apparatus. Other peculiarities of this skull, are, that the rami of the lower jaws are but slightly bent in comparison to those of *Bos* ; and that their condyles as well as those of the foramen magnum have a lower than ordinary position. The horns, of very moderate length, and gradually attenuated from a very thick base, occupy the extreme ends of the frontal crest, filling its breadth but not ascending within two inches of its greatest height. Their direction is towards the sides with a slight uniform ascending and retiring curve, which brings the points back about half way to the bases with a direction suited to their junction over the neck, though, in males especially, the distance between the points always remains great. The horns are upon the whole rounded, but with considerable oblique depression towards the massive bases, so that their breadth is greater by $\frac{1}{2}$ than their depth, and the anterior surface sharper or narrower than the posterior one, the greatest surfaces being (in a horizontal position of the skull) towards the zenith and nadir. The result is a subtrigonal or ovoid section at the base, where in old animals there are externally several heavy wrinkles : the colour is horn green with black tips.

No. 2, which is the half reclaimed stock of *Gavæus* vel *Bos sylhetanus*, is likewise a large skull, not above a 6th less than the preceding in dimensions of extent, but scarcely exceeding half of the weight of it, the bones being far less massive and also smooth on the surface. Here again we have signal length and breadth in the frontal region, both rapidly diminishing in the relatively contracted facial, so that the distance between the small fine muzzle and the eyes exceeds not that between the latter point and the summit of the head. In the precedent skull, the same proportion was observed. But in the profile of the present there are none of the curved lines, so noticeable in the last —no frontal crest, no saliency in the orbits, and no arcuation in the length of the nasals, which are, besides, as well comparatively as positively short, whence the interval, between their points, and those of the intermaxillaries is much greater than in the last ; though, as in it, these bones are entirely disconnected by the intervention of the malars. The greatest width of the frontals, at the two points before indicated, is to their length as 13 and 10 to 8 $\frac{1}{2}$. These are dimensions and proportions pretty similar to the last, and exhibit a comparative breadth not found in the common types of *Bos*, with which however the present skull agrees in the perfect flatness and rectilinearity of its frontals,

owing to the non-saliency of the orbits and to the straightness of the culmenal line drawn between the bases of the horns. There is a further essential agreement with *Bos* and disagreement with the last, in the circumstance of the horns being inserted on the summit of the frontals, which however, as in the last are carried high up between the horns and thence dropt perpendicularly upon the parallel plane of the occiput, of which they constitute with the entirely merged parietes, not indeed a half as in *Bos*, but a very material portion, almost $\frac{2}{3}$ th. The postcal plane of the skull is consequently of dimensions inferior only to those of the last but superior to those of the occipital surface in *Bos* or *Bubalus* or *Bisonus*. In the present subject its depth or length is not far from equal to that of the frontal plane, large as the latter is ; and as in the last temporal fossæ make a deep indentation upon it, though not so deep as in *Bibos* nor so centrally placed in respect to the height or depth of the plane. This indentation in both skulls marks by its position the extent of the false and true portions of the occipital plane, or that composed of the frontals and the parietals, and that composed of the occipital bones inclusive of those of the foramen and its condyles. In *Bibos* the former portion is equal, and more than equal to the latter, and the indentation is consequently central ; in the present animal the proportions of the two parts are as 2 to 3 and consequently the indentation is supercentral. This indentation likewise, as already noted is much less deeply cut, though more so than in the more ordinary types of *Bos* ; in which latter, however, the false occiput, so characteristic of these 2 skulls (*Gouri* and *Gayal*), cannot be said to exist ; nor is there in *Bos* proper any sign of the trigonal ridge defining the course of the parietes *superiorly* in the *Bisons* and in them only. The transverse ridge bounding the parietes *inferiorly* is defined in this skull (*Gayal*) about as distinctly as in *Bibos* and in *Bos*. In point of shape the postcal plane of the present subject represents in its upper portion a vague transversely laid parallelogram, and in its lower, an oblate sphere—of which two the proportionate size has been already stated as 2 to 3. But, if we take no heed of the indentation of the temporal fossæ and moreover consider (as *Cuvier* always does) the *base* of the plane as *rectilinear*, the figure of the plane may be called square. In the common *Ox* this indentation is *really* almost obsolete : but in both *Ox* and *Yak*, as in the *Bibos* also, the basal line is arched downwards. The culmenal line is arched, (upwards) only in the *Gouri* or *Bibos* and in the *Bisontine Yak*. The angle formed by the postcal with the antecal plane of the skull of the *Gayal* is very acute and in fact a right angle as in *Bos* and *Bibos*. The non-saliency of the

orbits and the straightness, longitudinally viewed, of the nasals, have been already noticed. In these respects, as in the lesser compression of the lachrymal and malar bones, the present skull agrees with that of the common Ox; but the intermaxillaries are narrower at their extremity, and the nasal bones are shorter in proportion to them, and to all the other dimensions indeed, than in the common Ox. In the narrowness of the muzzle (intermax:) there is a point of affinity with Bibos: and with regard to the bend of the rami of the lower jaws and to the position (high or low) of their condyles, as well as those of the foramen magnum, the skull exhibits a mixed character composed half of Bibos and of Bos. Duvancel erroneously I think stated to Cuvier that the Gayal species in the wild state have no proper dorsal ridge. Dr. Buchanon, however, asserted, of the reclaimed race, that the true ridge is present but short in extent, not extending over more than a third of the back. I cannot decide that essential point: but I know that the Cayal has only 13 pairs of ribs; and from the characters of the skull, I deduce a confirmation of H. Smith's opinion that the animal is an osculent species, as I should say of Bos or of Bibos according as it has, or has not the true dorsal ridge. The horns are placed at the ends of the highest part of the frontals, a large portion of which on both surfaces of the skull they cover or flank rather with their thick bases. Towards the bases they exhibit several wrinkles, but are smooth upwards and rapidly attenuated to the blunt points; as in Bibos the horns are subtrigonal and depressed the broadest faces (in the horizontal position of the head) being the superior and inferior, the next so, the postæal. and least broad, the antæal. The depression is even more distinct than in Bibos, but still the section is, upon the whole, ovoid. The horns are directed outwards with a slight inclination backward and upward, and hardly any curvature so that their divergency is exteme. The colour is wholly black, and this as well as the very moderate curve of the horns, and their position upon the summit of the perfectly flat frontals, may be used as decisive criterea to distinguish the spoils from those of Bibos or No. 1. In the females of Bibos the frontal crest, though less conspicuous than in the males, is ever present, and may be marked at once by the arched line passing between the *highest* bases of the horns, which it transcends in the middle—and by the depression of the frontals between their *lowest* bases. The skulls too of Govæus are from a half to a third smaller, taking weight and dimensions together. In the females of Bibos the horns are so much bent that the tips are as near as the bases, and pointed directly at each other just behind the nape. I proceed now to No. 3 or the Chowry Bull of Tibet which has 14 pairs of ribs and a strong dorsal ridge, though

limited in extent to the withers; and which is therefore justly considered to belong to the Bisontine group, though it be perhaps an aberrant or osculant species more connected by some of the characters of its skull with the Bubalines than with the Taurines. The distinctive characters of this skull are moderate size and weight, dimensions of length more preponderant (from increase in the facial region) over those of breadth, and more specially of height, than in either of the foregone or even in the common Ox; and, lastly, frontals distinctly though trivially convex in the upper part, whence they pass with a somewhat obtuse angle into a semi-circular or rather trigonal occipital plane of very moderate size. The excess in length of the facial over the frontal portion of the skull is as 11 to 7. The greatest width of the frontals at the two points before named is to their length as 10 and 9 respectively to $6\frac{1}{2}$: but as, owing to the higher position of the orbits, the nasals do not really extend upwards beyond a line drawn across *anteal* the edge of the orbits, the proper proportion of length to breadth of frontals is really about $7\frac{1}{2}$ to $9\frac{1}{2}$. This is an excess of proportionate width by no means exceeding that of the preceding examples, nay rather falling short of their proportionate breadth. It, however, exceeds the proportion in the common Ox, whose frontals, measured in the way just suggested and for the same reasons, are only as broad as long, and that equally whether we take the breadth between the orbits or between the bases of the horns. At first sight the frontals seem flat, owing to the elevation of the orbits; but they are effectually, and especially in the upper part, arched, as well across as longwise, so as to lessen the angle made with the occipital plane which is of moderate size, and composed entirely of the true occipital and parietal bones. These bones, delimited by a continuous ridge, whose apex constitutes at once the summit of the frontal crest and of the occipital plane, constitute the latter a right angled triangle, defined laterally (below the parietals) by the temporal fossæ and lambdoid crest, and basally by an imaginary straight line drawn transversely through the condyles of the foramen magnum. The indentation of the temporal fossæ upon the occipital plane, though larger than in the domestic Ox, is far less than in either of the preceding species; and, as it is drawn much upwards close under the horns, the occipital trigon is uninterrupted; as, for a similar reason, is the occipital *square* of the Ox, whose parietes, however, are merged, as in the Gouri and Gayal, though placed as high as in the Yak. Owing to this merging and to the absence of transverse arcuration in the frontal ridge line, the occipital plane in the Ox becomes square; whereas, owing to the boldly defined and pointed parietal ridge, and to the rounding off of

the frontals on either side of it, the same plane in the Yak becomes trigonal—or where the parietal ridge is more obscure and the rounded off and transversely arched ridge line of the frontals is made to define the occipital plane superiorly—semicircular; the *base* being *always* considered a *straight* line. There is a strong tendency, no doubt towards the Bubaline skull in the Yak, and not merely in the round and sloped off frontals as as above noticed, but also in the great extent of the facial portion of the skull, and in the very small curve of the rami of the lower jaw. Towards Bibos again there is an inclination in the transverse intercornual arch though it be vague, in the salient orbits, and in the longitudinal arcuation of the nasals, as well as in the large lateral vacuity towards the molars. The intermaxillaries cease considerably short of the nasals and the two sets of bones are consequently wholly unconnected, more so even than in the Gouri or Gayal. The nasals are no way deficient in length; yet is the interval between their anteaal extremities and those of the intermaxillaries more signal than in the Gouri, the Gayal, or even the Arna in which last the nasals are at a maximum of developement so as to be connected with the intermaxillaries for a considerable extent—a circumstance sometimes observable to a less extent in the skulls of the common Ox. In the living Bison or Yak the muzzle is small as in Bibos, but I cannot say I clearly trace the symptoms of this in any unusually narrowness of the intermaxillaries at their symphysis. Upon the whole the skull of the Yak as compared with that of the common Ox, is larger in proportion to the size of the animals, and exceeds the Bovine skull as much in breadth as it falls short of it in depth or height. These are characters of *depression* and are no where else so noticeable as in Bibos (excluding the crest) whence the skulls of both come further to agree in the common inclination towards straight lower jaws lowly articulated. But in the length of the facial portion of the skull as compared to the frontal and consequent high position of the orbits, and in the tendency of the rounded frontals to slope off easily towards the occipital plane, the Yak's skull differs antipodally from that of Bibos, approaching in the same degree to the Bubaline cranium. Of all the skulls now before us the position of the orbits is highest (longitudinally viewed) in the Arna or wild buffalæ, and lowest in the wild Gouri or Bibos; in the Yak its position is most analogous to that it holds in the common Ox. In regard to saliency of the orbits, there is the strongest resemblance between the Bison and Bibos—none of the others showing the least tendency that way. The horns of the yak, of moderate size, jetty black, rounded and smooth occupy, as usual, the ends of the frontal

apex having the frontal bones somewhat arched between them as well transversedly as lengthwise, though the evenness of the arcuation both ways be somewhat broken by the saliency of the apex of the parietes, which apex shows itself palpably on the central point of the crown of the forehead sometimes rising a little above and in rear of the cases of the horns. The horns are directed at first outwards, and then reverted upwards and backwards with a bold curve, which often leaves the points not remoter than the bases, in which case the points will tend towards the crown of the withers, or if less curved, directly backwards and parallelly.

I proceed now to No. 4 or the Bubaline skull, the most signal characters of which are elongation or preponderance of length over both width and depth, the very large proportion of that length borne by the facial portion in comparison of the frontal or cerebral, and the easy rounded slope by which the clearly convex frontals pass into the occipital plane. In regard however to the last named characters there is considerable diversity of degree found in different skulls, those which have the horns directed most backwards from and at their bases being most signal for the confluent rotundity of the frontals and parietals (in some almost as noticeable as in our own heads) and those which have the horns directly least backwards, being least so. Massiveness and size are no doubt further characteristics of the Bubaline skull; but characters in which it will bear no comparison, at least in regard to weight with that of Bibos, though the vast size of the Arna's horns will sometimes approximate the weight of both skull *and horns* to that of the skull and horns of Bibos. The Arna or type of Bubalus has 13 pair of ribs and no trace of the dorsal ridge of Bibos and of Bison, the ridge line being perfectly straight in the living animal from the nape to the root of the tail. The Arna is one third larger than the finest domestic breeds of buffaloe, and, like the wild type of Bibos, is distinguished for a short tail reaching only to the hocks. The limbs are much less fine than in the other Bovines, the body longer in proportion to its height, and the habits quite different, leading the animals perpetually to wallow in mud and water. Mais revenons a nos ossements. The length of the facial portion of the skull compared with that of the frontal is as 15 to 10 nearly. The greatest width of the frontals at the two points before indicated is to their length as 10 and $8\frac{1}{2}$ respectively to $7\frac{1}{2}$. The frontals in fact are both short and narrow, and they are invariably more or less, and generally markedly, convex, as well transversely between the unsalient orbits as lengthwise from behind the orbits to the occiput. The

more arched the forehead the obtuser the angle formed with the occipital plane and the more distinctly do a portion of the frontals and all the parietal go to form a part of that plane. In such cases the pseudo-occipital portion of the postcal plane is very noticeable constituting nearly one half of its whole depth and representing a transverse ovoid figure or oblate spheroid bounded above by the vaguely defined crown of the frontals, and below by the rather deep indentations of the temporal fossæ connected by any imaginary line. But usually, and whenever the frontals are not very much curved in their length, the pseudo-occipital portion of the postcal plane of the skull is trivial in depth, and defined above by a nearly straight line between the ends of the horns—the rest of the postcal plane constituting a second and less depressed sphere, defined above by the course of the true occipital ridge, and nearly excluding the parietal trigon so strongly marked in the last or the Bison of Tibet, but here wholly unmarked, the bone itself being utterly merged in the frontals.

In point of size the postcal plane of the skull, though moderate on the whole, is yet usually larger than in the Ox or in the Yak, but far inferior in extent to what is seen in Bibos—most nearly resembling the proportion and figure too in the Gayal. The nasals, molars and intermaxillaries are extremely developed longitudinally, so that the orbits are nearly twice as far from the symphysis intermaxill. as from the crown of the frontals. These bones have no proportionate breadth so that the face is narrow as well as long, except at the symphysis of the intermaxillaries where the dilation of the bones clearly indicates the broad massive muzzle of the live animal. The intermaxillaries intervene between the molars and nasals for 2 to 3 inches: the nasals are not at all arched and are well produced to the front so that the nasal cavity is upon the whole small, though somewhat increased by the lateral dilatation of the intermaxillaries in the region of the muzzle. The deficient width of the skull is indicated by the close position of the rami of the lower jaw, and its moderate height or depth, by their small curvature, though in the last particulars of deficient depth and consequent straightness of the lower jaws, the Yak's skull is pre-eminent. The horns of the Arna are signally remarkable for size, for horizontality, and for depression: their thickness is not so remarkable as their length and their tendency backwards parallelly to the plane of the face with bold lateral single curves (to the sides neither sinking nor rising) and more or less of divergency. Their length is sometimes enormous and there is a clear distinction between the breeds with the longer and less divergent, and

those with the shorter and more divergent horns. The horns are inserted typically at the ends of the frontal line which usually lies evenly between them, but is sometimes arched. They are so much depressed that the width is more than double of the depth, and the depression being at the same time oblique, the outer or anteal side presents a considerable flat surface, while the inner or postal one shows an edge only. The horns are therefore strictly triangular and that invariably so, 4 or 5 inches only at the points being rounded, and there only the horns are smooth, the rest of the surface being covered with close transverse wrinkles or rugae.

With regard to the skulls of the domestic Ox and those of the females of the Gouri and the Gayal, I will not fatigue the reader by any separate remarks on them. They have been sufficiently mentioned incidentally.

General dimensions, aspect and external characters of the Gouri Gao, the Arna and the Yak.

(1) Gouri Gao,	(2) Arna or wild Buffaloe.	
	(1)	(2)
Nape to root tail, straight.....	7 6 $\frac{1}{2}$	7 9 0
Height at shoulder ditto.....	5 8 0	5 4 $\frac{1}{2}$
Ditto at croup ditto.....	5 0 0	5 5 $\frac{2}{3}$
Depth of chest ditto.....	3 1 $\frac{1}{2}$	3 0 $\frac{1}{2}$
Girth behind shoulder.....	8 7 0	8 6 0
Fore leg to line of Chest.....	2 3 0	2 4 0
Tail only.....	2 7 $\frac{1}{2}$	2 9 0
Tail and tuft.....	2 9 0	2 11 0
Head, length from nape to snout along the curve.....	2 10 $\frac{1}{2}$	2 8 $\frac{1}{2}$
Diitto straight, snout to crown forehead.	1 10 $\frac{1}{2}$	1 10 $\frac{1}{2}$
Ditto ditto Snout to fore angle of eye..	1 0 0	1 2 0
Thence to nearest base of horn	0 5 $\frac{2}{3}$	0 4 $\frac{1}{2}$
Depth of head, greatest from crest of forehead to edge jaw.....	1 4 $\frac{1}{2}$	1 1 0
Breadth of forehead, greatest above or- bits.....	0 11 $\frac{2}{3}$	0 9 $\frac{2}{3}$
Length of ditto from line of upper edge of orbits to crest of head	0 11 $\frac{1}{2}$	0 8 $\frac{1}{2}$
Length of ears.....	0 10 $\frac{1}{2}$	0 11 $\frac{1}{2}$
Greatest width of.....	0 6 $\frac{1}{2}$	0 0 0
Length of fore hoof.....	0 6 0	0 7 $\frac{1}{2}$
Greatest breadth of ditto.....	0 4 $\frac{2}{3}$	0 7 0

Length of hind hoof.....	0	5	0		0	6	$\frac{3}{4}$
Greatest breadth of ditto.....	0	4	0		0	5	$\frac{3}{4}$
Horns length outside curoge.....	1	9	0		4	6	0
Terminal interval of tips.....	1	9	0		1	9	$\frac{1}{2}$
Nearest basal interval postea.....	0	7	0	ant	—	6	0
Remotest basal interval antea.....	1	1	$\frac{1}{2}$	post	1	0	0
Weight of skull and horns.....	32	lbs			30	lbs.	
Girth of horns at base.....	1	6	$\frac{1}{2}$		1	8	0

Character of the heads with their integuments.

GOURI GAU. The head is large and massive with great breadth and depth rapidly diminishing towards the gape where the ample lips and muzzle cause it to swell again : the straightness of facial line is slightly interrupted by the arcuation of the chaffron, even before you reach that light point where the frontals commence to make their huge curved sweep towards the occiput. The crest of this sweep is about $1\frac{1}{2}$ inch above the horns ; its antea base $5\frac{1}{2}$, and its postea, $2\frac{1}{2}$ above the proximate planes, fore and aft. Its form is almost cylindric between the bases of the horns which occupy its ends entirely, and pass behind it on the dorsal surface ; muzzle of small size for a taurine animal and somewhat indented curvately on superior edge instead of running straight across between tops of nares ; nares broad, lunate and oblique : upper lip full, laxly applied to head, and falling over lower lip which has a small beard : both lips near the gape have large soft pointed and recurved papillæ. The 8 incisors below, which are ranged in a small arch with broad nearly level crowns, are quite moveable in the gums : the chaffron is of medial length and boldly convexed lengthwise and across : the forehead is long, broad and flat, till the arched sweep between the horns commences at 7 inches from the extreme antea base of forehead or a line drawn across the *antea* points of orbits : From *this* line to the crest of forehead there is a length exactly equal to the greatest breadth between the orbits, which is at their postea salient angles. From the great length and breadth of forehead result the low position and great separation of the eyes. The interval between them across the top of the chaffron is one foot by the natural curve ; and the distance from their anterior canthurs to the nearest base of the horn is $5\frac{1}{2}$ inches. In the Arna the same interval is but $8\frac{1}{2}$; and the same distance, but 3. The ears are of ample size and spread greatly towards the tips, the shape being somewhat ovoid ; from anterior edge of helix proceed some long hairs, and the lower margin is indented by short striæ of closer hairs which run all round its edge :

the rest of the interior is nude ; the auditory orifice is at the very bottom of the ears, small and round, and protected on the anteal side by a process equivalent to the tragus, but wholly internal above this a short transverse bilobate process defining the upper line of the small and vague concha, and having a deep inclination above it answering to the lower ridge of the antihelix and scapha respectively.

The eyes are rather small, oblique, full with oblong oblique pupil and large soft lashes to upper lid. The horns are very remote, short thick, directed nearly outwards and a little backwards with the tips recurved inwards and backwards. They have a very broad base passing gradually into skin and postally secreting and nude. They are depressed and subtriangular, the broadest faces being the superior and inferior, and the third of the triangle, the postal face: the anteal is reduced to an obtusely rounded edge merely: the trigonal form gradually gives way upwards, and the recurves are conic, ending in a sharp point: two or three heavy rugæ near base: rest of horn very smooth and glossy: colour pale green with black points. As already noted, the horns lie $1\frac{1}{2}$ inch below the crest of the forehead; but a portion of their base passes a good way *behind* that crest, which ends on the occipital surface of the head in a small segment of a circle, below which the plane of the occiput is quite and falls perpendicularly on the nape with a clear dip of several inches wholly unoccupied by the muscular attachments of the neck.

The hoofs in the living animal are not spread, but rather compressed, with the flat sides of the cleft nearly touching. The sole is flat, rounded, softish, and ascending postallywards the false hoofs which are considerably developed and conical, the fore hoofs larger than the hind: the neck short thick, and sunk between the frontal and dorsal crests the shoulders and trunk very massive and deep, being surmounted by an elevated dorsal ridge conterminous with the ribs: the hind limbs and croup lower and feebler; the barrel tapering ventrally towards the hind legs: limbs low, stout, fine; tail hardly reaching the hocks, slender, cylindrico-tapered, closely haired and ending in a full tuft. The hide is exceedingly thick: the hair close, glossy and of one sort only, though the specimen be a mature male killed in mid winter. On the forehead, on the chin, and thence to the chest (along the abdominal aspect of neck) and on the fronts of the limbs below the central flexures, and there only, is the hair a little elongated and slightly waved or curled; but only slightly and every where else the coat is short, straight and applied. The hairs of the tail tuft also are coarse, a little elongated.

There are 4 teats plainly developed and running in two lines on either

side the scrotum before it begins to depend : a fifth is bastard and irregular. The colour of the animal is black : but the forehead, the whole limbs below the central flexures, the edge of the upper lip and the chin are dirty yellow white : the scrotum, and insides of thighs near it, tan colour : insides of fore legs near body, or sides of chest, also paled and yellow grey : internal nude parts of lip and palate, fleshy white : insides of ears, ruddy fleshy.

BUFFALOE WILD. The head is as long as the Gouri's but not so massive. Its entire facial line is straight : the forehead is much shorter and narrower and convexed across. By reason of the shortness of the frontal bones, the eyes are more raised and much nearer to the horns. In proportion as the frontals are shortened, the nasals (or chaffron) are elongated, giving the head a narrower longer look. The frontals are not raised above the superior edge of the horns, and they pass with a gentle curve to the occiput : Ears larger, narrower and more pointed : muzzle larger and squared between superior edges of the nostrils, which have a longitudinal direction not obliquely across, as in the Gouri. The whole animal is clearly in make longer than the Gouri but not more massive on the whole, more so in the hind quarters, less so in the fore. The back is quite straight without osseous crest or fleshy hump, and the neck and head are in line with it : the tail as short as in the Gouri : skin nearly as thick. The Gouri has more massiveness in the head and shoulders, and its chest is quite as deep or deeper, but the barrel and croup both follow much behind. As the Gouri stands at ease, the crown of his forehead is as high as the crest of his shoulders ; but there is a deep fall between the two, and the back has a long and pretty equable slope from the withers to the croup where there is a sudden droop. The limbs are shorter but as strong though less gross than in Arna, and the hoofs are smaller and less spread : tail similar in both : Ears shorter broader and less drooped in the Gouri Gau. The Arna is longer and higher on the whole ; is equally strong fore and aft ; and the line of the back is quite straight from the head to the tail. Both have the knees and forehead tufted : but the Gouri is uniformly and fully clad in short Bovine soft hair, while the Arna has its head, neck, chest, shoulders and greater part of its body above, scantily dressed in bristly hair, and the rest of the skin, more or less denuded.

June 1.—**FÆTUS IN UTERO OF GOURI GAU.** Snout to rump 16 inches. Height at shoulder 1', at croup 9½. Head (straight) from snout to frontal ridge, 5. Tail 4, is probably not above 3 months old, nude, fleshy

red, with yellow hoops; is a female. 13 Pairs of ribs, 7 true and 6 false per side: dorsal vertebræ 13: Lumbar 6: (Ilium in fœtus joined only to one sacral vertebra) alias, ossa iliū jointed with 1st sacral vertebra only. Hollow of sacrum formed of three. In all 4 sacral: caudal 16: cervical 7: Spinous process of the 7th but moderately raised, process of 1st dorsal twice as long as 2nd and 3rd dorsals, gradually increasing: 4th to 8th nearly equal and longest: 9th 10th about length of 23: 11 to 13 gradually falling off; spinous process of lumbar not noticeably larger but broader than those of dorsal. Dorsals: Dorsal vertebræ 13: Spine of dentale vertebræ rather large. The general contour of the head from nose to occiput presents an equable arch in all its length, the frontals having no transverse dip, and but a moderate crest passing backwards with a broad quiet swell: frontals 2, divided longitudinally: 2 parietals occupying the sides of the head, contributing to the full uniform swell of superior surface and indented postally in a triangular shape, which indentation is filled by the anteal portion of the occipital, and is still on superior surface of the skull. This triangular occipital bone is bounded below, by the transverse suture, and here the fall towards the postal surface of the cranium begins. The second, or true occipital bone, bearing the crest is shaped differently. The others are two for the condyles, and one for the cuneiform process.

This young is a female, and probably therefore as well as on account of its imperfect state, the head shews nothing of the transverse depression or of the huge crest, characterising the frontals of mature male. Kidneys, as in Bos, oblong and multilobular, Intestines 20 feet, of thin uniform diameter. Cæcum $1\frac{1}{2}$ inch long, and 36 inches from end; its diameter and that of gut below it, rather plus that of the small guts. Stomach 8 inches long; length between orifices, 5—from Cardiac to funders, 3; peculiar formation vaguely traceable; great paunch largest; next solvent, rather less.

June 20.—MOTHER OF ABOVE, FROM SAUL FOREST. Snout to rump nine feet. Height before 5 feet. Tail 2 feet one inch. All essential characters and the aspect, of mas, but smaller considerably and dorsal and frontal crests less developed. Colours identical.

Yak, Bisonus Pæphagus, male, mature, July 12.

Nape to root tail (straight),	5	6	0
Height at shoulder,	4	2	0
Ditto at croup,	3	6	0

Depth of chest,	2	6	0
Girth behind shoulder,	5	10	0
Foreleg from rest to elbow,	1	10	$\frac{1}{2}$
Hindleg from ditto to true knee,	2	4	$\frac{1}{2}$
Tail only,	1	3	$\frac{1}{2}$
Tail and hair,	2	10	0
Head, from nape to snout (curve),	1	11	0
Ditto from snout to top frontals (straight),	1	8	0
Snout to fore angle of eye,	1	1	0
Thence to nearest base horn,	0	4	$\frac{1}{2}$
Greatest depth of head frontal crest to lower edge of jaw,	0	11	0
Ditto width ditto,	0	9	$\frac{1}{2}$
Ear's length,	0	5	$\frac{1}{2}$
Ditto maximum width,	0	2	$\frac{2}{3}$
Length of fore hoof (rest),	0	4	$\frac{1}{4}$
Greatest breadth of ditto,	0	3	$\frac{2}{3}$
Length of hind ditto,	0	4	0
Greatest breadth of ditto,	0	3	$\frac{1}{2}$

4 teats narrowing wedgwise backwards. Whole of perineum, scrotum, inside thighs and hypogastric region, from anus to prepuce, nude; skin, white. Hair along superior edge of whole of above nudity forming a long fringe with a very definite margin: nudity carried *partially* forward from prepuce to end of sternum with accompanying fringe; and armpits quite bare.

Head glarish: facial line straight: muzzle vague and small: nares oblique; eye medial and with brown iris: ears small, oval, horizontal: Dorsal ridge true, elevate, abrupt, confined to withers: limbs very short, sufficiently fine. Barrel deep and compressed. Tail (true) very short, tapered, reaching only to mid buttock. Hoofs and false hoofs much scooped below: the latter, also large. The small guts are 107 feet, mean diameter, $1\frac{1}{2}$ inch: diameter for 19 inches from pylorus, 2 inches: cœcum 2 feet 3 inches, not saccid: max. diam. 4 inches. Ditto at entrance of small gut, 3 ditto at blind end, 2: Large gut 33 feet 4 inches: mean diam. 2 inches; for 18 inches from cœcum, diameter 3 inches, diam. of rectum, 2: spleen 22 inch by 4, of uniform diam.; ends rounded, weight $1\frac{1}{2}$ lb.; kidneys lobulated greatly; $6\frac{1}{2}$ long by $2\frac{1}{2}$ of equable diam: weight of each 10 oz. Liver one great lobe, with 9 small lobuli on lower surface, white without, gamboge when cut into, and full of tubercles: gall-bladder 5 inch. by 4, of uniform width, attached to costal margin of liver which is 7 lb. weight.

Length of 4th stomach 1-10 shape of a bottle with a neck of 4 inches long and $2\frac{1}{2}$ in diameter; above which is an oval dilatation 5 inch in diameter, coarsely rugose internally, and with glandular looking bodies between its inner and outer coats, diameter of pyloric orifice itself, $1\frac{1}{2}$ inch; basal width of 4th stomach, 10 inch: 3d stomach, round, 10 inch of diameter: 2d stomach sporran-shaped or hemispheroidal, 10 inch long by $7\frac{1}{2}$ of diameter: 1st stomach, quite round, 27 inch in diameter. Bladder, as spread, 13 by 7 inch. Depth of sternal cavity, or thorax, 30 inch: from ensiform to spine, width between 11th pair of ribs, $20\frac{1}{2}$. Lungs—right 4 divisions and much the largest, one is the lowest of them—left, 3; lowest largest: another central one from the right, under apex of heart, very small—8 lobes in all. Larynx ringed only in front. Heart 11 inch by $6\frac{1}{2}$ of greatest diameter. Diameter of larynx at branchial division, 3 inches. Thoracic viscera, 14 lbs. Heart with pericardium, 3 lbs. 3 oz.

Another Yak, alive, head large with round forehead and straight facial line; eye full; muzzle moderate; ears small and rounded; body full; limbs low; large, abrupt, sloping ridge occupying the hind $\frac{1}{2}$ of the neck and fore $\frac{1}{2}$ of back, Dewlap none.

Nape to rump,	6	1
Height a fore,	4	3
Ditto a hind,	3	6
Fore leg (from body),	1	5

Tongue white and strongly aculeated, processes corneous, pointed and inclined back in fore part, flattened and level and larger towards root of organ.

In concluding these tedious, but in the present state of science, indispensable details, we may be permitted to enquire whether they suggest or lead to any general principles or facts? Whether, for instance, they justify our separation of the Gouri Gao as a distinct type among the Bovinæ? and whether, as well with reference to the introduction of this new form as to the obvious vagueness characterising the extant definitions of the other forms, these details suggest no feasible improvements upon those definitions?

Both these questions may I think be fairly and usefully answered in the affirmative and I shall terminate this paper with the following improved indications of the principal Genera or groups of the Bovinæ.

Bos. Cranium moderate, proportional or without excess in the cerebral or facial region: frontals shorter than the face, flat and not broader than long. Occipital plane of the skull quadrangular, never arched along the culmenal line, nor indented by the temporal fossæ; smaller much

than the frontal plane and forming an acute angle therewith: Horns attached to the highest line of the forehead, rounded, moderate, curved up or down or forward: 13 pairs of ribs: no true dorsal ridge, but sometimes a fleshy hump: dewlap and muzzle large and square.

Type. *Bos domesticus*.

Bibos. Cranium large, massive, exhibiting preponderance of the frontal and cerebral portions over the facial: frontals as long as the face, concave, broader than long, and surmounted by a large salient crest ascending above the highest bases of the horns. Occipital plane of the skull spheroidal, very large, larger than the frontal plane, deeply indented in its centre by the temporal fossæ and forming an acute angle with the frontal plane. Horns attached below the highest line of the frontals, massive but short, ovoid or subtrigonal, and curving ascendantly: 13 pairs of ribs: a true dorsal ridge coextensive with the ribs and terminating abruptly: Dewlap and muzzle small; period of gestation longer than in *Bos*.

Type, *Bibos Cavifrons*.

N. B. *Gavæus* an aberrant species leading to *Bos*?

Bison. Cranium moderate, depressed, inclining to Bubaline forms in the excess of the facial portion over the frontal, and in the rounding off of the frontals into the occiput: frontals decidedly broader than long, more or less convex, and forming an obtuse angle with the semicircular or trigonal occipital plane, which is strongly ridged by the parietes at its summit, is smaller than the frontal plane, and moderately indented. Horns attached rather in advance of the parietal apex of the Cranium, small, rounded, curving ascendantly, or out of the horizontal: 14 (or 15) pairs of ribs; a true dorsal ridge but confined to the withers and terminating posteally in a gradual slope: Dewlap and muzzle small.

Types, *B. Americ anus*, et *Poephagus*.

Bubalus. Cranium large, elongate compressed or narrow, disproportional exhibiting great excess (a 3d) of the facial over the frontal or cerebral portion: frontals short, narrow, convex, usually forming an obtuse angle with the occipital plane, which is large and circular in proportion to the obtuseness of that angle and to the consequent arcuation of the culmenal line of separation: Parietals merged, not ridged as in the last, nor culmenal. Horns attached to the ends of the highest line of the skull, always exceeding in length that of the Cranium, and usually greatly so depressed, strictly trigonal and neither ascending nor descending but directed horizontally backwards: thirteen pairs of ribs: no true dorsal ridge nor fleshy hump: muzzle large and square: Dewlap medial.

Type *Bubalus Arna. fœm. Arnee*.

Cuvier first divided the Bovinæ into subordinate groups, as usual with him employing only craniological characters. H. Smith has since added to Cuvier's the osteological characters of the *carcase*—the number of ribs and the all important dorsal ridge. I have only more consistently and thoroughly applied these principles at the same time rejecting several palpably false or trivial diagnostics; and having said thus much for my suggested definitions I now leave them to the discretion of the expert. Though I have thought it expedient for the present to consider the *Bos Gavæus* vel *Sylhetanus* (Gayal) as an aberrant species rather than as the type of a new form, I have not failed to remark how singularly, were it regarded in the former light, the entire series might be made to exemplify the quinary and circular system. If we dispose the five supposed types thus. *Bibos*, *Bison*, *Bubalus*, *Bos*, *Gavæus*, we shall find the circularity of the series in many respects very curious and complete. Thus, looking to the crania alone, *Bibos* is connected with *Bison* by broad frontals, salient orbits, and other quasi cervine attributes. *Bison*, with *Bubalus* by the prolongation of the facial part of the skull, and the easy rotund transition from the frontal to the occipital plane. *Bubalus* with *Bos* by comparatively narrow frontals and broad square muzzle. *Bos* with *Gavæus* by flatness of frontals and the acute angle they form with the occipital plane. *Gavæus* with *Bibos* by great width of frontals and increased extent, and peculiar characters of the occipital plane as well as by contraction of the muzzle; the acute angle of the two planes of the skull being still maintained.

If again we pass from a consideration of the crania to that of that osteological carcasses, in regard to that most important feature the osseous dorsal ridge, we shall find this ridge at its maximum of development in height and extent in *Bibos*; next diminished in extent in *Bison*, but not in height; lost in *Bubalus*; tending to reappear in *Bos*; and clearly resumed (as is alleged) in *Gavæus*, and in that peculiar shape too which is so highly developed in *Bibos*.

The above indications of circularity in a complete series of five forms are at all events curious and calculated to stimulate further observation. They have therefore been thus mentioned and should future inquiry tend to confirm the conjectured importance of *Gavæus*, it will be but the work of a few minutes to characterise this species as a distinct type.

B. H. HODGSON.

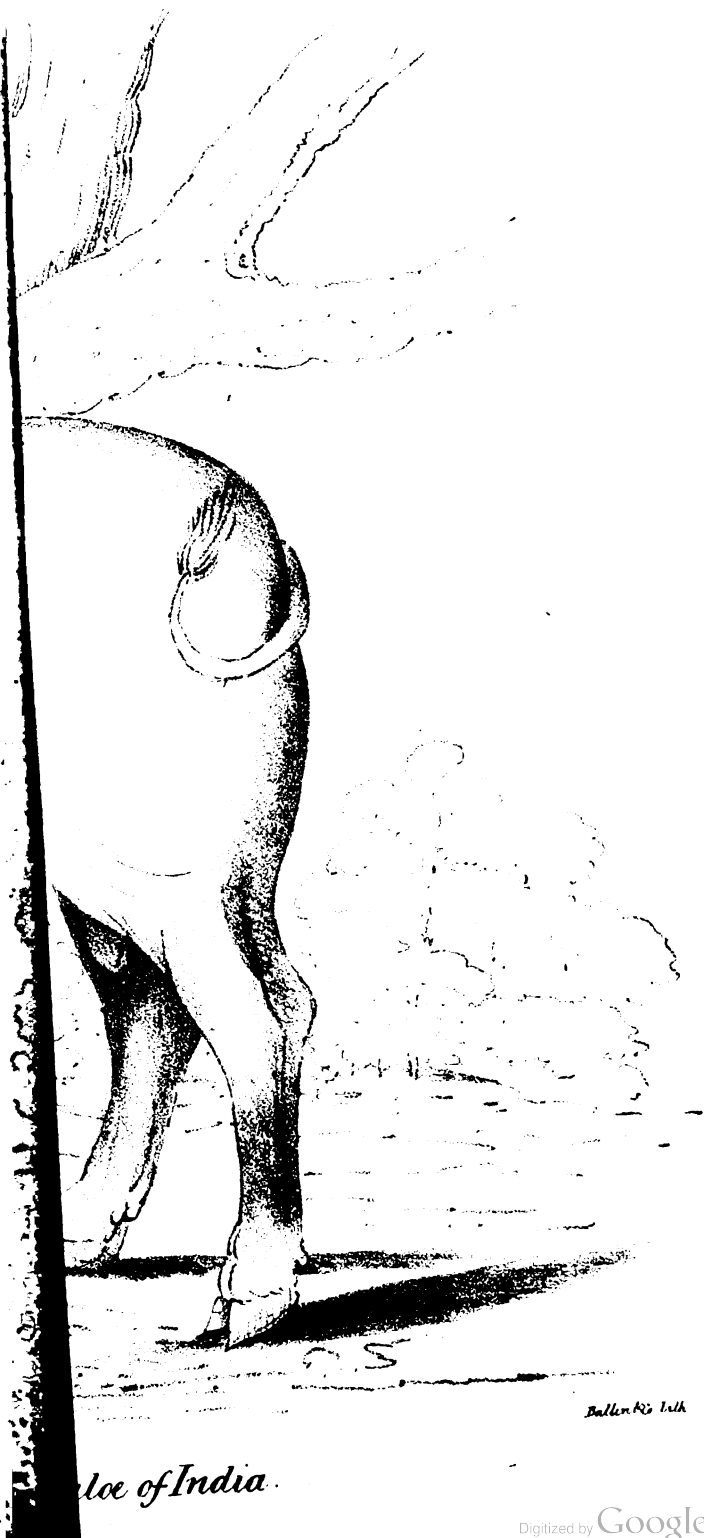
Valley of Nepal, April, 1841.

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Ballou's lith

Indian Forests.

On the Geology, &c. &c. of Hunumkoondah (H. H. the Nizam's Territory) by DR. WALKER, Madras Army, continued.

The route from Hunumkoondah to Pakhall, lies almost due east. The intervening country is on the whole less hilly than that left behind as far as this place, when a chain of low flattened hills, covered with trees, and shrubs, is observed to extend in a direction from N to S, and is lost in the horizon at both points. The black soil becomes more abundant, no longer occupying mere patches, but forming tracts of considerable extent, and here it may be noted that to an eye at all accustomed to observe this country with reference to its vegetation, an open treeless plain suggests at once the prevalence of the regur soil; for with the exception of the *Butea Frondosa* (Palas), which here, and there appears, there is scarce a tree that affects it, while on the red soils care and industry can alone prevent high jungle from springing up. The granite continues the only surface rock until Sarapore, near which there is an out cropping of sandstone, granite however, re-appears, and may be observed near the road leading from that village to the lake at the crossing of the first stream, but in this neighbourhood it is soon lost in sandstone, which as far as I have remarked forms the masses composing the hills abovementioned. This rock is of various degrees of hardness; it is sometimes of such a dense crystalline structure, as to possess the qualities and appearance of quartz rock; at others the arenaceous form is distinctly visible; the stratification also is of great variety; at certain points the layers are so thick, massive, and irregular, as to resemble unstratified rock; at others the strata are not thicker than a quarter of an inch, and are disposed in parallel layers. This last appearance is particularly well marked at the Chubootra of Shetab Khan, where the rock looks more like a schist than a sandstone. No specimen I have yet met with of the rock effervesces with acids, and the only earthy minerals that it appears to contain are fragments of red jasper, and chalcedony approaching to flint. I have not seen these in situ, but think it probable that they form with the rock a conglomerate. Dr. Voysey speaking of the sandstone rock of the Nizam's territory states 'in no instance have I seen the sandstone stratified,' by which it is clear he could not have been at this place; it is likely that beds of oxydulous iron are to be met with here; I draw this conclusion from the fact of the sandstone being in some cases distinctly encrusted with thin layers of this mineral, and also from the point of junction of two rocks being the locality where metallic minerals are most frequently met with. This

Pakhall tank (for the name of lake, is scarcely in accordance with its artificial embankment) is a fine sheet of water, and takes precedence of all the tanks in Telingana, both as to depth and extent of surface. It is at least thirty miles in circuit when quite full, and besides affording a deep and copious stream for the purposes of irrigation, sends a tributary to the Kistnah, which even at this season of the year merits the name of a small river; it is bounded on three sides by low hills covered with wood, and although the vegetation is now, parched and burnt up, picturesque beauty is by no means wanting to the landscape; immediately after the rains it is quite conceivable that it may vie in scenery with the better known and much lauded Italian Lakes; considering its extent, its value is small, for its whole circumference to some depth is occupied by a dense jungle, and fifteen hundred bigahs under cultivation from its irrigation are but slender tribute to the chief of tanks; the situation is said to be unhealthy, for at least eight months of the year, which may account in part for its thinly peopled neighbourhood.

The draught and carriage bullocks met with appear strong and hardy; they are not equal in symmetry or size to those of Guzerat, or the Ellichpore part of Berar, but very similar to the Malwah animal, to the strength and vigour of which they probably come up; they are usually of a white colour, and are much sought after by the Bunjarries. The method of breeding and rearing these animals would be deemed singularly judicious, did not the necessity of the care, which forces the proprietors into the best mode of management, take from it all merit. The cows from which they are bred are allowed to roam about the jungles in a half wild state, with a few keepers nearly as wild as themselves to tend and occasionally milk them. These possess many of the habits of the wild cattle of South America, and also of the remnants of that aboriginal race still kept in a few British preserves, such as combining for mutual defence, and attacking by the whole herd rushing on in a body; they guide rather than follow their herdsmen, who wisely enough suffer them to choose their pasture ground by that instinct which domestication blunts without annihilating. In a dry year they congregate in great numbers around this tank, from all parts of the country, during the months of April and May, for the pasturage which at that period in the less extensive jungles fails them.

It is evident that no better means could be devised for keeping up a vigorous and serviceable race of bullocks than this treatment of the cows.

In addition to the cultivated plants mentioned in my first letter a small quantity of sugar-cane has been lately added to the list, and with some success ; it is unnecessary to say that the expression and boiling of the juice are conducted in the same manner that these operations are performed throughout India from the Himalaya to the Cape Comorin, and that the compound of sugar, molasses, earthy matter and other impurities, called *goor* is the result. A Sugar Mill, wood, carpenter's work and all costs from five to six rupers. The fixed state of the industry of Asiatics cannot find a more fit illustration than in the management of their Sugar Cane. For at least two thousand years, for of that period we have record, that the same rough process has been gone through, the same amount of labour wasted rather than expended, and the step beyond their rude and economical preparation of sugar-candy (in which they have been completely distanced by the Chinese), has never been thought of. A follower of the School of Madame de Stael, who apportioned invention and suggestion to certain parallels of latitude, and improvement, and perfection without discovery to others, would point to the history of the manufacture of this necessary springing up in the South, but perfected by Northern skill as proof of their theory : but another estimate would refer this backwardness to improvement on the part of the Asiatic to that ever enduring insecurity of property which has taken from capital nearly all its power to stimulate or reward industry, from combination all its force, and from skill every disposition to suggest, far less improve.

It would be wandering far from the subject to enquire how this insecurity arose, and how it has been perpetuated, but deficiency of moral, much rather than intellectual energy has been at its root and accompanied its growth.

A very common plant grows on the black soil, chiefly in the jowarrie fields, the *Croton plicatum* mistaken by Burman, for the *Croton tinctorium* of the South of Europe, which plant it greatly resembles in properties and appearance. The *Croton tinctorium*, is cultivated in the South of France for its dye, the litmus or turnsole as it used to be called. Drs. Ainslie and Roxburgh have both suggested the employment of the *Croton plicatum* for this purpose ; acting on their opinion, I have extracted, by a simple infusion from the capsules of the plant, a dye having the peculiar properties of litmus, but have failed in purifying it from the extraneous substances contained in the aqueous solution. This is commonly done in Europe by fermentation and by admixture of some alkali, or alkaline earth, by which the blue-violet, its peculiar colour, is maintained, but these means will not answer in a tropical country, where the great heat

causes the infusion to pass almost at once to the putrefactive fermentation, whereby the colour is vitiated or altogether discharged, a thing not likely to occur in the more temperate climate of Europe. I see that the same vitiation of colour of the Himalaya Archil, a litmus lichen, is complained of in the transactions of the last meeting of the Agri-Horticultural Society of Bengal, and I would recommend that a sufficient quantity of capsules of this plant (which I can readily supply) be sent to England there to be tested by superior Art, and under the more advantageous circumstance of a cooler temperature. The natives regard the plant as completely useless, and are even ignorant that the juice of the capsules gives a blue stain to cloth; I shall now give some account of the more useful trees and shrubs, all of which are found growing in the neighbouring jungles.

Caryota Urens. This stately palm is indigenous to these jungles, but from all I could hear is not to be met with in great abundance.

The soil would appear to suit it well, as one specimen I saw grew at least to the height of 60 feet. This is the sago palm of the interior as the other species which yield that article are either insular, or coast productions, which would in all probability perish if transplanted from the soil and climate they most affect. To those who have witnessed or even heard of the dreadful and unavoidable calamity of famine to which every well peopled tropical region is subject, any suggestion by which the horrors of that scourge may be averted or even mitigated must prove acceptable; a feasible means of doing this would appear to exist in propagating and carefully preserving these sago trees, and I cannot conceive a fitter purpose for the almost useless waters of this splendid tank, than their contributing to the inestimable end; for a preserve of these palms in its neighbourhood would not only be secured in a never failing supply of water, but the tree jungle with which it is surrounded would afford shade to the young plants, which, from the situation that they are found wild in, would seem requisite. Far be from me the wish to see a race of men palmivorous, for lotophagi and anthropophagi notwithstanding all that the poets have sung of the golden age, may on most occasions be made convertible terms without any violation of the truth, but the very nature of things precludes the supposition of the natives of India ever becoming so, as much as it does our painting ourselves with wood or worshipping the mistletoe. As to the fitness of the food for the support of life during famine, I subjoin the statement of Dr. Roxburgh, who must have been an eye witness of the facts related. 'The pith or farinaceous part of the trunk of old trees, is said to be equal to the

best sago, the natives make it into bread and boil it into thick gruel; these form a great part of the diet of those people, and during the late famines they suffered little, while those trees lasted. I have reason to believe this substance to be highly nutritious. I have eaten the gruel, and think it fully as palatable as that made from the sago we get from the Malay countries.'

The fronds make a better cordage than those of the *Elate sylvestris* commonly used by the Coonbies.

The worst property of this palm is the only one with which the natives are familiar, the inexhaustible supply of Toddy which it yields.

Butea Frondosa (Palas) *Butea Superba*.

Both these, and especially the last, which is a magnificent climber with a trunk of the thickness of a man's body, yield the palas gum or East India kino as it has been called; of this a specimen is sent. Dr. Royle has lately estimated the quantity of tannin, which this gum yields at no less than 50 per cent, two per cent more than that yielded by the Catechu of Bengal.

Tannin is the substance which, by combining with the gelatine of hides forms leather, and is that which gives to oak bark, Aleppo galls, Valonia, &c. their high commercial value. Although every second tree in this part of Telingana is the Palas, there is not one ounce of gum collected, being reckoned wholly useless and unprofitable by the natives.

I cannot help thinking that this production will soon be looked on as very valuable in the arts, should this happen, they will not be wanting a supply from Telingana, where both *Buteas* are so common.

Robuna tree—*Swietenia Febrifuga*.

The bark of this tree is the well known febrifuge—On the authority of Dr. Ainslie, certainly very respectable—Dr. Lindley, in his valuable works has stated that given in large doses it is apt to produce nervous symptoms and hence objects to its use—does not the very same objection apply to *Cinchona*?

Besides the evidence of any one physician on the febrifuge properties of a medicine is wholly insufficient, for what is so common as head affections in tropical fevers. With the permission of the resident, I shall send a parcel of the bark to the medical store-keeper of H. H. the Nizam's Army, that it may be sent to Britain for trial in the less bulky form of an extract.

Wrightea Antidysenterica.

The bark of this small tree is the once celebrated Conessi bark, it is said to have got into disuse from other inert barks being substituted for

it. I shall send also a parcel of this bark to the medical store-keeper. *Sterculia Urens*. It is said this tree yields a gum similar to the gum *Tragacanth* of commerce (Royle).

Buchanania Latifolia Chironge tree. The nut is used for all the purposes of the Almond by the natives, it would in all probability produce as good an oil as the almond.

Chloroxylon Swietenia, juice said to give a yellow dye. Of other useful trees here are *Nauclea Cordifolia*, *Mimosa Xylocarpa*, *Mimosa Serissa*, *Allangium Hexapetalum*, *Pentapteracoriacea*, *Dalbergia Latifolia*; *Hibiscus populneus* *Terminalia Bellerica*, *Strychnos Nux Vomica*, and a species of *Gmelinu Ulmus integrifolia*, well adapted for furniture building, &c. all are in great abundance. The Teek *Tectona grandis* is stunted and worthless in these jungles, and the *Diospyrus Melanoxylon*—Black ebony, grows to no great size. Of the less useful trees are *Careya Arborea*, *Barringtonia acutangula* *Ixora parviflora*, *Ficus Comosa*, *Erythrina Suberosa*, &c. The principal shrubs consisted of the *Ochna squarrosa*, *Grewia orientalis*, *Symphorema involucrata*, *Gardenia Latifolia*, with fragrant beautiful flowers, *Trophis Aspera* and *Premna Tomentosa*. The climbing plants are chiefly the *Sifonia Nutans*, *Combretum Ovalifolium*, the *Ventilago Madraspatana* and the *Ola*.

The *Cissus Cornosa* and *Dalbergia Scandens* were also seen. The most common parasite was the *Loranthus scurrula* the *Bassia Latifolia*, Mowah tree was comparatively rare. Some trees were so utterly without leaf, or flower, that their names or value could not be conjectured but these were in no great number. The Herbaceous vegetation was completely burnt up.

Note and Tabular Statement N. W. Frontier.

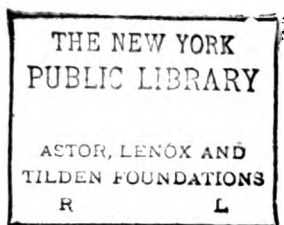
The annexed statement (No. I.) will shew the enormous increase which has taken place in the Export trade to Cabool during the past year, aggregating on the three descriptions of produce no less than 38,08,873 rupees as compared with the preceding year.

Of the three denominations of exports, one only, being Country produce is prepared from Official records (chokie registers). No Account being taken at the customs chokies of free goods, I have been obliged to refer to the Merchants themselves for information as regards them, and they have obligingly allowed me access to their ledgers, from whence the amount of exports under the heads of 'British Manufactures and Productions,' and Sea Importations, has been ascertained, not in exact details, but sufficiently accurate to meet the object in view.

bool, from 18.

May 1840 to 30th

	Invoice value.	Inc. vi co 18
L	3,00,000	2,
D	4,20,000	3,
M	3,95,000	3,
J	3,36,000	2,
C	2,30,000	2,
D	2,52,000	2,
H	2,20,000	1,
B	5,87,000	5,
V	60,000	
B	28,000	
P	77,000	
I	7,000	
C	2,03,350	1,
C	29,750	
V	10,250	
	20,317	



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I may as well mention, that previous to the occupation of Affghanistan by our Troops in 1838-39, the Exports from these Provinces were trifling to a degree, the returns for the Imports being for the most part sent back in specie. Within the last year or two, however, the demand for our Exports has so greatly increased, that instead of taking back specie, Hoondies to a very large amount are sent to Delhi from Cabool, to meet the deficit caused by the excess of Exports from these Provinces, over the Imports from Affghanistan. Some time last year one merchant sent us a single remittance, Hoondies on Delhi from Cabool for no less a sum than forty thousand rupees, to be invested in the purchase of British goods.

Formerly the whole of the Export trade with Cabool, was carried on by the fruit merchants, who merely took back a small portion of their returns in British manufactures. There are now, several highly respectable merchants wholly unconnected with these traders, who confine their operations to exporting, from our Provinces goods for which, at present, they are unable to find a return in kind.

As it shews how anxious they are to establish a return trade, I will mention, that more than one instance has been reported to me of Russian goods (principally hardware and spurious gold tissue) having been, brought across my frontier line, the packages having Moscow marked on them, these goods were however of so inferior a description as to be rejected by the natives whenever offered for sale. Indeed the cutlery was inferior to that made at Monghyr and in the Delhi Bazar.

In reply to your second question, as to whether I can do nothing to help the Cabool Merchants, I can only state, that I have done and am doing all in my power to encourage this enterprising and deserving class of men, in every way possible.

In the mean time, I would suggest that the first object of Government should be to open the route for trade, through the Khyber Pass, by obtaining from the intermediate states, some modification of their present system of duties, which press so hard on the merchant, as to drive him round by the circuitous route now taken, where they are subjected to exactions it is true, though less oppressive and vexatious in their nature than those in force in the Seik states.

P. S.—To shew the enterprising disposition of the Cabool Merchants, I will mention that a short time ago I gave one of them a note to Mr. Clarke, to aid him in his endeavour to take an investment of Indigo, Jewellery, Gold Lace, &c. to Yarkund.

On the 'Electro-type.'—BY CHARLES HUFFNAGLE, Esq.**REFERENCES TO THE PLATE.**

- | | |
|------------------------------------|--|
| 1. Wooden cell. | 5. Copper plate, on which coin is placed. |
| 2. Glass cylinder. | 6. Zinc plate on acid liquid. |
| 3. Brass binding-screw. | 7. Crystals of sulphate of copper to keep up a saturated solution. |
| 4. Shelf perforated in the centre. | |

MY DEAR TORRENS,—I felt gratified, at our last meeting, to find you were also much pleased with the fac-simile of my coin of 'Alexander' by the Voltatype, and I cheerfully promised at your desire an account of the process, for which, and also for the successful result of the experiment, I am indebted to my talented friend Professor O'Shaughnessy. I believe detailed accounts have already appeared in print, but this mode of copying coins and medals is so exceedingly *simple*—the result so surprising and satisfactory, and it is so fully in the power of every body disposed to devote the slightest attention to it—that we cannot make it too widely known.

1st. You must provide yourself with a wooden cell 8 or 10 inches square—with an inside coating of sealing wax—or other cement to render it water tight. This box should be 3 inches deep, with a ledge 1 inch from the top to support a wooden shelf.

Affix to the edge of the box a brass binding-piece, formed of square brass, perforated with two holes and furnished with binding-screws.

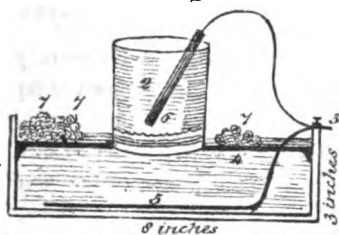
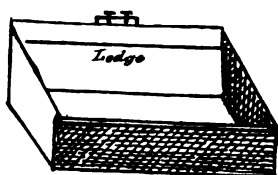
2d. A glass cylinder open at both ends, to the lower end of which a piece of *moist bladder* must be secured with a *waxed cord*, and the diameter of this cylinder must correspond with the perforation in the shelf fitted to the square box.

3rd. Plates of *sheet zinc* amalgamated by mercury; i. e., by rubbing a few globules of mercury over the zinc, after dipping it into a mixture of one part of sulphuric acid and one of water, must also be provided; and these plates corresponding in length and breadth to the size of the cylinder, must be attached to a *copper wire* 6 or 8 inches long.

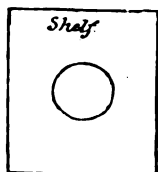
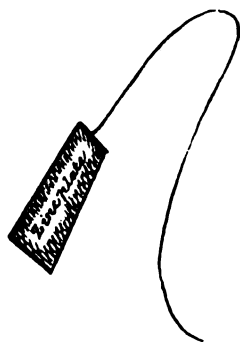
4th. A *plate of copper* 3 or 4 inches square with a copper wire 6 inches long.

5th. Supplies of sulphate of copper in crystals, and concentrated sulphuric acid.

When you proceed to use the apparatus, prepare a saturated solution of the blue salt, in soft hot water, strain it off turbid and allow it to cool—



Cylinder



prepare a dilute acid with one part of concentrated sulphuric acid and a pint of water.

Brighten the *copper plate* and place the coin to be copied thereon, then apply a coating of bees-wax over all parts of this plate and wire, allowing the surface of the medal you wish to copy, to be the only surface exposed.

Place the plate so that it shall rest flat upon the bottom of the cell—fill this with the solution of sulphate of copper to within half an inch of the top—fix in the shelf, and over the perforation place the cylinder, charged with the dilute acid. Into the acid introduce the zinc plate, and now let the wire of this as well as that of the plate of copper be inserted into the brass '*binding-piece*.'

[The coin should be previously warmed—wax rubbed over the side we wish to copy and then the wax while warm rubbed off carefully with a soft rag. Lumps of sulphate of copper must also be placed upon the shelf in order to keep the solution in a saturated state.]

In twenty-four hours a reverse impression of your coin will be deposited, to remove which, take the coin from the copper plate, and warm it over a spirit lamp for a few seconds, then introduce the edge of an ivory knife, and you will be able to detach the copper deposit with ease. You have now only to substitute *this mould* as in the first step for the coin, and you will have your '*fac-simile*.'

Here then you have the account you wished for, in which, recollect, I don't claim the least *originality*.

Yours very truly,

CHARLES HUFFNAGLE.

9th June, 1841.

Roree in Khypoor; its Population and Manufactures.—By CAPT. G. E. WESTMACOTT, 37th Regiment Bengal N. I.

(Continued from page 415.)

There were four paper factories in the town of Roree in 1839, worked alternately by men who had learnt the craft from their master Jhoora, the principal manufacturer, who receives two anas a day from each apprentice. The finest paper he produces is inferior in quality to that of Delhi and Agra; it is made entirely of old hempen rope and string, brought from Hyderabad in lower Sind, and sells in Roree at 6½ rupees a *man*; the consumption is very limited and it forms no part of the regu-

lar imports of Roree. The manufacturer draws his supplies from time to time from Motoo, a *suhokar* of Noushuhra, who also supplies the factories of Khyrpoor and Shikarpoor. The *suhokar* is exempted by government from taxation, in consequence of services rendered by his ancestor to the Talpoor family of Khyrpoor, who resided, I believe, at the town of Noushuhra belonging to Meer Roostum, before they acquired sovereign power; this of course enables the *suhokar* to sell hemp at a cheap rate and gives him almost a monopoly of the trade.

The hemp is chopped on a plank, with a knife, into small pieces, and thrown into a washing vat one yard square, and half the depth, coated with mortar. It holds three seers of lime and two of *khar* (impure alkali), with water contained in five or six earthen pots; the manufacturer does not measure the water and is ignorant of the quantity required, but a pot contains usually ten seers, and when very foul and sandy it is purified with alum.

The hemp is washed, bleached, and macerated in the vat, and after being shaped into cakes and masses of all sizes, is put in the sun to dry; it is thrown afterwards into a pit to reduce it to pulp. The pit is five feet long, four feet broad, and three feet deep, paved with large stones and half of it nearest the bottom lined with stone. The tow is pounded half as long again in winter as it is in summer; in the latter season the shreds are more easily divided and macerated. Two or three men work the machine by placing one foot on a lever (F.) nine feet long, connected with a hammer (E) (see plate Fig. 4, No. 113) half the length, and the other foot on a bank of earth (B.) along side it, four feet long and eight inches high. They support themselves on a transverse rest six feet long (A.), or by grasping loops of ropes suspended from the timbers of the shop roof. The lever is kept in its place by stakes and a groove, and a transverse beam seven feet long (C.) prevents it rising above a certain level. The labour of working the pedal is extremely fatiguing in the hot months; a man sits in the pit (D.) during the operation of pounding the tow, to separate and moisten it occasionally with water, and pushes it under the hammer; this is usually done by the master; twelve hours labour are required to reduce to pulp a seer of tow, but a larger quantity is generally prepared at one time. The tow is taken from the pit in flat cakes and masses of the pulp weighing fifteen or sixteen pounds, and piled on stones in the sun to dry; afterwards it is thrown into another vat four feet square and two feet deep, lined throughout with mortar, and, after being diluted to a proper consistency with water, is separated with the hand and stirred two hours, and left about nine hours in the

vat. It is then dipped up by the workman on a light wooden frame or mould of seven bars, on which a mat (*boora*) is laid of the size of the intended sheets, made of *sur* (the stem of *moonj* grass) split into extremely fine pieces and united with horse hair.

The man sits on the edge of the vat, and is often provided with a pipe with a long tube, to which he applies his mouth from time to time without staying his work. He regulates the number of dips of the mould accordingly as he wishes to give consistency to the paper, always taking care to stir the liquor well before he raises it. He transfers the sheet, as soon as formed, to another frame of fine reed, which is placed upon one of *sirkee* (the upper stem of *moonj* grass,) carefully laying sheet upon sheet as he takes them from the vat, without the interposition of cloth of any kind, and leaves them about nine hours to drain; the sheets are then pressed under a plank, upon which two men stand for an hour. Those made during the day are pasted at night against a mud wall made smooth with clay and cow dung, and the men use for the purpose soft brushes of *moonj* grass ten inches long, which they prepare themselves. The paper is removed in the morning to a plank or board, where it is rubbed with a cotton cloth dipped in wheat flour, and suspended on hempen strings raised on sticks in a yard for twelve hours until perfectly dry; it is then carried back to the board and put into the hands of the polisher, who does not belong to the factory: he rubs it with a large smooth stone to give it a glaze or polish. Some of the stones are black basalt from Khorasan, and appear to have been rounded by the torrents; and smooth pieces of limestone and white marble are also used. On the completion of this process, the rough edges of the paper are cut with large scissors, like those used by tailors, and it is now ready for sale in the bazar.

On my second visit to this factory I found the work stopped in consequence of the men having gone to the British camp at Sukur, where they were employed in other labour at eight pys (four pence) a day. Until the establishment of our camp, there was a small consumption of paper, and it is by no means a profitable occupation; Jhoora could not afford to employ men above half a day at a time, and their labour in the factory was more severe than that exacted from them in the cantonment. The manufacturer (Jhoora) employs four men (Moosulmans), at ten pys ($4\frac{1}{2}$) each per diem, to sweep the building, chop hemp, bring water from the Indus, and conduct the whole process of manufacture. He estimated the cost of his shop and machinery at 100 rupees, and the pit in which the tow is beaten at half the sum, but was not positive as his father built it. It is a large sum, but I do not question his veracity, as he did not over-

value other parts of the machinery; the large stone at the bottom of the pit took twenty men to lift it, and this, and other large stones at the bottom and sides of the pit, were brought from a long distance.

	Rs.	A.	P.
Pit,	50	0	0
Two vats lined and terraced at the edges with two <i>mun</i> s of mortar,	10	0	0
Wooden lever (<i>Talee</i> F.) and hammer, E.	10	0	0
This is exclusive of seven seers of iron fastened to the bottom of the hammer which cost,	7	0	0
Transverse beam (C.) and supports,	2	0	0
The beam (A.) and its two supports,	1	0	0
The shop which holds the three vats and machinery,	5	0	0
The shop was a kind of shed, open at the sides and measured twenty-four feet in length and eleven in width. Two sides were walled in with boughs of the date tree, and the roof was mat and reeds upheld by wooden posts. Neither mud nor bricks were used in the construction.			
Six frames or moulds of fir wood measuring 23 inches in length and 20 in width, for raising the stuff from the cistern, at 6 <i>anas</i> each,	2	4	0
Three fine mats of split reed 23 inches long bound together by horse hair to place on the frames, at 6 <i>anas</i> each,	1	2	0
Sirkee mat to receive the sheets,	0	0	2
Board on which the paper is polished,	0	4	0
Polishing stone,	0	2	0
* Earth pot (<i>muttee</i>) to contain a <i>mun</i> of water,	0	3	0
Two earth pots (<i>dillee</i>) containing each ten seers,	0	0	4
Thirty strings to hang paper on,	0	4	0
Pair of scissors for cutting paper,	1	0	0
Chopper (<i>koolharsee</i>) to chop hemp, containing half a seer of iron,	1	0	0

Rs. 91 5 0

I need hardly observe the fine texture of paper depends on the hemp being well beaten, and the number of dippings required to form a sheet depends a good deal on the vatman's dexterity in raising the stuff; sometimes five and six dippings are necessary. Hemp is pounded four days

* Earth pots are dear at Roree, and there are only two potters in the town.

to form fine paper, and three days to form a coarse kind, 18 or 20 days are required to convert a *mun* of hemp rope into paper, which gives sixty large quires of twenty four sheets to a quire, each measuring 22 inches by 18; or one hundred small quires measuring 20 inches by 12; supposing the assertion of the manufacturer to be true, that to convert a *mun* of rope into paper costs him twenty rupees, he derives a profit of 25 rupees.

Rs. A. P.

One <i>mun</i> of hempen rope to make paper of the best quality, ..	6	8	0
Wages of Workmen,	9	8	0
Lime at 50 seers per rupee,	0	1	0
Two seers of khar (alkali) at 1 pys per seer, ..	0	0	2
Polishing 60 quires at 1 ana per quire, ..	3	12	0
Alum,	0	1	0

Rs. 19 14 2

The manufacturer sells a quire of large paper of the best quality when polished at 12 anas, and unpolished at 10 anas; sixty quires at 12 anas per quire give Rs. 45.

Five quires of paper made in another factory, sold for a rupee, and were the produce of three and four layers of stuff; the machinery and apparatus were similar to those I have described, but not so expensive, and the manufacturer had less capital than his neighbour. The pounding pit had a single stone at the bottom over the spot where the hammer descended, the rest of it was covered with planks to prevent the stuff mixing with earth, and the sides faced with brick; the pounding pit, hammer, and shed, cost together 80 rupees.

There was only one reservoir lined with mortar measuring nearly two feet square and 2½ feet deep, into which the stuff was thrown after it was removed from the beating pit;

Rs. A. P.

It cost,	5	0	0
The branch frame for taking up the stuff,	0	8	0
Fine mat to place upon the frame,	0	4	0
Board on which the paper is polished,	0	6	0
The shop which held the vat,	32	0	0
Lever, Hammer, and supports,	21	0	0
Pit,	18	0	0
Polishing stone, earth pots, and strings,	0	8	0
Scissors and chopper,	2	0	0

Rs. 79 10 0

3 p

The shop measured eleven feet in length and seven in width. The walls were sun baked brick, and timber interlaced with tamarisk boughs, the interstices filled with mud, and the roof of timber covered with reeds and clay.

The factor paid four workmen from six to ten pys a day (three pence or five pence), but did not employ them regularly; the vat man who raised the pulp worked only half the day, as his labour is very constant and tiresome, and received two anas (three pence.) The factor does not weigh the tow as he considers it would bring ill-success on his work, and throws into the pit any quantity that is cut.

Roree receives silk from Persia, and from Bokhara and other parts of Toorkistan. During the war between Shah Shoojah and Dost Mahomed Khan in 1833, the supply was stopped six or eight months and the weavers out of employ. The invasion of Affghanistan by the British eight years afterwards, interrupted commerce by the route of Kandahar and the Bolan Pass, but did not interfere with the supply of silk from Cabool which was, on the contrary, in excess of the quantity imported the preceding years, and came as usual, on camels *viâ* Peshawur, Dera Ismail, Mooltan, and Bahawulpoor.

A single hand silk loom can be established in Roree for 4 rupees, or about 8 shillings English. I annex a list of tools and their cost :

	<i>R. A. P.</i>
A Spinning Wheel,	1 4 0
Rods of Surkunda reed passed through the warp to preserve the shape or lease, cut in the wilds.	
The pit or workshop, three feet long, two feet wide, and two feet deep, dug by the weavers.	
The cloth-beam or breast roll, a square beam of <i>talee</i> wood three feet long, placed over the pit and to which the ends of the warp are fastened,	0 8 0
<i>Kite.</i> Two upright posts six inches high which support the breast roll and in which it revolves,	0 0 4
Handle (<i>phirnee</i>) to turn the breast roll,	0 0 1
<i>Sundules.</i> Two sticks attached to the breast-roll to which the warps are fixed,	0 0 2
<i>Hutha.</i> The lay cap $2\frac{1}{4}$ feet long,	0 8 0
<i>Phunee.</i> 'The reed' a sort of comb of split Surkunda reed between which the warp passes,	0 1 0
<i>Dootna.</i> Two painted and varnished rollers forming part of the heddles to which the loom is fixed and suspended from the shop roof,	0 0 2

<i>Ruchee</i> . Four thin sticks set upright and connected by cotton threads and forming part of the heddles,	0	4	0
Cotton threads to form the heddles for suspending the <i>ruchee</i> , and lay cap to the shop roof,	0	2	0
<i>Ponsur</i> . Two round sticks attached to the <i>ruchee</i> and suspended in the pit,	0	0	2
Two wooden treadles, ...	0	0	2
<i>Duna</i> . Horizontal beam or yard roll on which the ends of the warp are wound,	0	0	1
Post to which the yard roll is fastened by a rope,	0	0	4
Rope of date leaves,	0	0	6
<i>Nar</i> or shuttle of <i>taree</i> wood, the only part of the machine that is formed neatly,	0	8	0
Iron reel or needle,	0	0	$\frac{1}{2}$
<i>Sipes</i> . A thin plate of blunt iron $2\frac{1}{2}$ inches long and $1\frac{1}{2}$ inches wide for scraping the woof,	0	2	0
<i>Buhla</i> . A piece of leather paid with the hand under the woof when it is scraped,	0	0	4
Iron pincer to pick off rough threads from the surface of the silk,	0	0	2

Rs. 3 14 0

A weaver earns four anas (six pence) a day, and will finish a piece of silk 24 yards long and 11 inches wide in a month. The manufacturer's profit is from 3 to 5 rupees.

A piece of *Duryass* 24 yards long and 11 inches wide manufactured of *Shalbafes* or *Nuwabee* silk from Toorkistan, costs :—

Orange colour	12 rupees or 8 annas a yard.
Blue	11 do. or 7 do. do.
Yellow and green	10 do. or 6 do. do.

Raw undyed silk thread imported from Persia and Toorkistan sells in the bazar at 16 or 17 rupees the seer, and $\frac{1}{2}$ or $\frac{3}{4}$ of a seer are required to weave a piece 96 yards long and 11 inches wide. The import duty on undyed silk thread is 1 rupee per seer and $1\frac{1}{4}$ ana extra on thread dyed at Shikarpoor or elsewhere in Sind.

The dyer's charges are :—

For reddish-brown or orange colour, formed by safflower (the dried flowers of the *Carthamus Tinctorius*), $2\frac{1}{2}$ seers per rupee.

For blue, formed by Indigo, 1 seer per $2\frac{1}{2}$ rupees.

For green, formed by Indigo with gooljuleel (mettilel,) 3 seers per rupee

For yellow, formed by gooljuleel, 3 seers per rupee.

They are the only colours used in Roree by silk-dyers, and the weavers are ignorant how to produce any pattern or design.

When the weaver receives thread from the dyer he smears ghee over it to give it strength and flexibility, and applies wheat starch occasionally to the woof with the point of a stick enveloped in cotton rag.

As far as I could ascertain there are 160 silk looms in Roree which pay a yearly tax of 900 rupees, which is 200 rupees less than the sum realized in the time of the late Meer Sohrab. I visited several loom-shops and found them all in a state of wretchedness and discomfort. The shop from which the description is taken, measured eight feet in length and twelve feet in width, and cost ten Shorabee rupees; it had a pent roof of reeds, mats, and date leaves in bad repair; the ends rested on square pillars of sun baked bricks and the middle on posts, and a low door was built in a wall of tamarisk boughs kept together with posts set on end and sticks tied across them. It was no protection from thieves. Work-shops are not, however, built with a view to secure property, and tradesmen and mechanics rarely sleep in them; they return home at night and carry with them any articles and machinery likely to tempt the cupidity of a thief.

Cotton weavers have a loom of the same description as silk weavers, and worth 3 rupees:

	Rs.	A. P.
The spinning wheel,	1	0 0
The hand wheel,	0	0 3
(This is worked by a female whose hire is included in her husband's wages of two anas (3d. a day),		
30 lease rods of Surkunda reed cut in the wilds.	1	0 3
The pit in which the weaver sits dug by the weavers.		
The cloth-beam or breast-roll $4\frac{1}{2}$ feet in length,	0	8 $\frac{1}{2}$
Two posts in which the cloth beam revolves,	0	0 2
The lay cap 3 feet long,	0	8 0
<i>Dootna</i> and <i>Sundules</i> , part of the heddles,	0	0 4
Two <i>Ruchee</i> part of the heddles,	0	6 0
The 'Reed,' of split Surkunda reeds,	0	0 3
Two <i>Ponsur</i> ,	0	0 2
Two treadles,	0	0 2
<i>Duna</i> , or horizontal beam,	0	0 1
Goats' hair rope to which the end of the warp is fastened, ..	0	0 5
Shuttle of <i>kundee</i> wood, and iron reel or needle,	0	4 $\frac{1}{2}$
Cotton threads and horizontal sticks firming the heddle or harness for suspending the loom to the shop-roof, made in the shop.		
	Rs.	3 2 0

In 1839, coarse cotton thread fetched in the Roree market from four to sixteen anas a seer, and fine thread four rupees a seer. A weaver works a piece of cloth 12 yards long and $\frac{1}{2}$ a yard wide in a day, $\frac{1}{4}$ seer of thread is sufficient for a piece this size which sells for $1\frac{1}{2}$ rupee. A piece of coarser texture which consumes a seer of thread sells at $\frac{2}{3}$ rupee. A weaver in Roree earns 2 anas (3 pence) a day, which is a half-penny more than is paid in the best cotton factories at Boulac (Cairo). The master's labour is calculated to be worth double, and he prepares the most difficult part of the work.

The shop I visited held two looms and a female spinner. It measured 15 feet long and 9 feet wide and cost 5 rupees, three of which went for labour; two sides of it were fenced with tamarisk twigs unplastered and kept together with sticks laid across them; the third side was open, and the fourth joined a mud wall of another house: the shop had a low wooden door and a broken roof of mats and reeds propped on posts, and this is a fair description of by far the greatest number of shops belonging to mechanics and artizans in Roree.

Cotton cloths were among the few articles which became cheaper at Roree after the arrival of the British. This was owing to the large quantity imported by merchants from the Punjab and Bhawalpoor: they took advantage of the diminution of duties and increased facilities of navigating the Indus.

The process of printing and dyeing calico is usually conducted by one person, and the proprietor of the shop I am to describe, had no assistants, and performed the whole work himself. Working dyers receive 2 anas a day, and food morning and evening, consisting each time of half a seer of wheat flour. The dyer had a walled court ten yards long and six yards wide which enclosed two sheds. The one he occupied himself measured twelve feet in length and ten in width, and he let the other to a cotton spinner.

To prepare cloth for the print and dye, it is immersed four hours in an earthen pan of alum and water mixed in the proportion of 1 to 16, and care must be taken if it be intended to give the piece a uniform tinge from the dye, that this substance, technically called mordant, is universally applied over the whole—otherwise it is applied only in parts; it is then withdrawn from the alum mordant, drained, and washed. A piece of cloth, 24 cubits long and 1 cubit wide, requires an *ana's** weight of alum and five seers water. The dyer afterwards grinds some tamarisk flowers (*sak oor*)

* An *ana* is a Sind weight equal to 6 Shorabee rupees.

in a common stone hand mill and mixes one part flour with sixteen of water. Cloth impregnated with this fluid acquires a yellowish hue, and the immersion is repeated before it is consigned to the colouring vat.

Black spots are left on a white ground of cloth by applying to these points a paste, composed of acetate of iron, gum (*cheer*), and fuller's earth. The dyer forms the acetate from old nails or any rusty iron which he throws into an earthen pot with wheat starch and water, in the proportion of one of iron, two of water, and one fifth wheat starch, and exposes it in the sun four days in summer, and eight in winter as the iron is then longer dissolving. The stuff is transferred to another vessel and fullers' earth melted with it in no fixed proportion until it becomes a thick paste, and to every five seers he adds an *ana's** weight of gum.

The dyer pours the stuff into a shallow box of baked clay, glazed inside and out, and measuring eight inches square and three inches deep. A frame five inches square formed of twelve small bars of *sirkas* reed, bound together at the ends by transverse wooden bars and twine, is set on the paste, and over it a piece of coarse wool on which the dyer presses the block to avoid taking a superabundance of the stuff which would happen if he plunged the block directly into it. The dyer had twenty blocks or engravings in relief, of different designs, made at Shikarpore of tamarisk and tamarind wood, and measuring four and five inches each way. The stuff which accumulates from time to time in the engravings, is removed at intervals by small brushes made of boar's bristles.

Madder (*munjeeth*) is the dye stuff used for producing red colour, and the best kind sells at $2\frac{1}{2}$ seers per rupee; it is not a product of Khyrpoor and imported from Khorasan and India, and through the sea port of Korachee. The stuff is obtained by boiling one part madder in thirty parts water in a copper vessel, till the colour is thoroughly extracted from the root, which takes about four hours. The root is then withdrawn from the pot and thrown away. Eight pieces of cloth each 24 cubits long and 1 cubit wide, are sometimes dyed at once, and boiled two hours in four seers of madder. The cloth is taken from the colouring bath to a river, and beaten on a plank cut in furrows, like the one used by washermen, to deprive it of superficial colouring matter. It is rubbed an hour with cowdung and left all night to dry, and in the morning washed again in the river in the manner noticed, and spread in the sun to dry. The dyer renders the colouring matter a more decided red by mixing *khar* (alkali, with water,) and sprinkles it upon the

* An *ana* is a Sind weight equal to 6 Shorabee rupees.

cloth. Two ana's weight of alkali are sufficient to moisten a piece of cloth 24 cubits long. He washes the cloth a third time in the river, carries it home, and, after folding it, beats it into a smooth even surface with a wooden roller which terminates the process. Four days are required to print and dye a piece of cloth 24 cubits long and 1 cubit wide of any pattern. Fine calico absorbs a larger quantity of fluid than a coarse kind. The man charges one rupee for printing and dyeing a piece this size of the best pattern, and half the money for an inferior pattern. In both instances the charge for printing amounts to one fourth of the whole sum. The man does not use any other colour than madder, and he was the only dyer in Roree in 1839. The dyers of green and yellow cloths had fled to Khyrpoor to escape the exactions of the Governor, and the dyer of blue cloths had removed his shop for the same reason to the British camp.

The Roree cotton printer had :—

	Rs.	As.
Ten wooden blocks (<i>chemba</i>) 4 inches long and 2½ inches which cost 5 anas each,	2	2
Ten wooden blocks 4 inches square at 4 anas each,	8	3
Two small brushes of hog's bristles for cleaning the blocks,	0	5
Two boxes (<i>dubkee</i>) of baked clay, 2 anas each,	0	4
Bench 4½ feet long and 2 feet wide raised on legs to hold the cloth for printing,	1	0
Mat of date leaves,	0	1
Large earthen pan,	0	8
Three earthen pots,	0	3
	<hr/>	
	Rs.	7 15

The price of ingredients he requires to carry on his business is stated below :—

	Rs.	As.	Ps.
Madder root 2½ seers,	1	0	0
Tamarisk flowers (<i>sakoor</i>) brought from the wilds per seer,	0	0	8
Gum (<i>cheer</i>) per seer,	0	8	0
Alkali (<i>khar</i>) per seer,	0	0	1
Alum per seer,	0	6	0

The road duties, and *octroi* or barrier duties, levied on four-footed animals is ruinously high, and of course affects their hire. For instance between Roree and Kyrpoor, a horseman pays :—

	<i>Pys.</i>
At the gate of Roree,.....	2
Half way,	$\frac{1}{2}$
At the gate of Kyrpoor,.....	2
	<hr/>
	4 $\frac{1}{2}$
	<hr/>

The distance between these places is only 8 kos.

Between Roree and Shikarpore, 16 kos, he pays:—

	<i>Pys.</i>
At Roree,	2
Indus ferry, .. .	3
At Sukhur,	9
Village of Driha 4 kos from Sukhur,....	4
Barrier of Shikarpore,	5
	<hr/>
	23
	<hr/>

or nearly one shilling English. These heavy charges are the consequence of Roree, Sukhur, and Shikarpore being under separate Governors.

Hire of cattle from Roree to Shikarpore, and Khypoor.

	<i>Rs. As.</i>	<i>Rs. As.</i>
Of a Camel,.....	1 4	1 0
Of a Horse or Pony,	0 12 or 16	0 8 or 9
Of a Mule,.....	0 10	0 8
Of an Ass,.....	0 7	0 5

Hindoo merchants and Bankers exact 24, and sometimes 36 per cent. for money borrowed by zumeendars and persons in needy circumstances, and collect it monthly. But in money transactions with each other they only take 6 per cent. No moosulman practices usury.

Ferries are little frequented except on the line of commercial intercourse, and the roads leading directly to large towns: in other situations they do not give regular employ to the boatmen. Flying bridges of a single rope fixed to stakes on the banks, are thrown across canals and streams cut from the Indus, and a man pulls the passenger across in a boat. The charge for crossing the Indus is, one pys a head for foot passengers double for an ass, and quadruple for a cow or buffaloe, and on small rivers like the Anul and Nuhra, half these respective amounts.

Boats proceeding up and down the Indus before the treaty of 1839, which established the free navigation of the river, paid a toll of one rupee

at Bukur without reference to their tonnage, and tolls at Kurdehee and Thatta. They were searched at Hyderabad, Sehwan, Chilka on the Arrut, Khypoor on the Nuhra, and at Roree. An attempt to conceal goods not entered in the bill of lading, condemned the cargo to confiscation and the owner to fine and imprisonment. He must exhibit the merchant's accounts of whom he purchased the goods and a certificate of the custom house officer of the place where they were embarked, without which they are stopped. Grain landed at Roree is charged about $4\frac{1}{2}$ per cent. duty regulated by the price current of the town.

The natives of Sind, with the exception of a few high caste Hindoos who abstain from fish, subsist on fish, milk, and wheat or *joowara*, or rice where it is cultivated, and a variety of vegetables which grow in plenty. From motives of economy they eat wheat during the *rubbee* or spring harvest and *Joowara* or maize in the *Khureef* or autumnal harvest. The price of rice has risen considerably since 1838, and is now beyond the means of the lower orders except in districts where it is the staple. Rice is the red kind and people clean it by pounding it in large wooden mortars with salt in the proportion of one part salt to six of rice. It is sifted from the salt and something less than a pound of wheat flour added to bleach it. Every boat on the Indus is provided with a deep wooden mortar formed of the hollow trunk of a tree. The boatmen buy grain in the husk because it is cheap and beat it in the mortar with a club to separate the chaff.

Meer Roostum obliged the milkmen of Roree to dispose of milk at $2\frac{1}{2}$ pys a seer, but on their threatening to go over to our camp, allowed them to sell it at 3 pys. At Sukhur the price formerly was 2 pys a seer, and doubled in 1839. Curds (*Duhas*) continued at the old rate of 2 pys. Ox and Cow beef sold formerly at 2 pys a seer in Roree, and latterly at $2\frac{1}{2}$, and goat's flesh rose from 5 to 6 pys. The beef and mutton killed in camp for the troops, was extremely lean and tough, and hardly eatable, when cooked in a common way, nor was this surprising as the Sind butchers feed their sheep and cattle on the refuse of stables, and do not give them grain and very rarely Kurbee (the stalk of *joowara* and *bujra*.)

Labourers and other poor people, eat twice a day, in the morning and evening, and consume $\frac{1}{2}$ of a seer of wheat or *joowara* flour, and one pys worth of *bor*, a condiment made of fish, spinach, or pulse. To prepare *bor* the fish is cut in pieces and thrown into boiling water, and onions, black pepper, coriander seed, turmeric, and pomegranate seeds, are added as seasoning. At present (1839) $\frac{1}{2}$ of a seer of wheat or *joowara* flour costs

3 pys, so that including the price of *bor*, a poor man consumes two pence a day. Labourers earned high wages in our camp and could afford to purchase comforts, but they had been so little accustomed to possess cash beyond their daily and pressing wants that they spent the surplus improvidently. After working a few days they absented themselves, without leave, for a week, and squandered their earnings on hemp juice and tobacco. They returned to ask their employer's forgiveness and to resume their labours, but followed again the same improvident course when they amassed a little money.

The food of a Moosulman of the better class costs about a rupee a day, and consists of :

	<i>Pys.</i>
1 lb. Rice,	3
1 lb. Wheat Flour,	2½
1 lb. Goat's Flesh,	4
1 lb. Ghee or Clarified Butter,	8
2 lb. Butter Milk,	4
¼ lb. Butasha,	4

25½

The family eat half about sunrise and the other half at noon, and a third meal, consisting of the same quantity, at the first watch of the night. A Zumeendar of Sukhur of my acquaintance, spends ¾ of a rupee a day on food, and his servants eat what is left. Hindoos live more frugally.

Poor people eat with their food a large quantity of chillies which they pound in a mortar with an equal quantity of coarse salt, and add some oil to diminish their fiery taste. Three pys weight of whole chillies are sold for a copper pys, and half the quantity pounded for use. Fish is dressed with linseed oil and a variety of spices, and the lower orders grill the entrails on wood ashes and eat them with salt.

There is little in Sindian cookery to tempt an epicure who has tasted the delicacies of a *Parisien restaurateur*, or the royal kitchens of Dilhee and Lucknow. I shall give the reader an idea of their cookery by describing a banquet at Sukhur in 1839 to which about two hundred guests were invited. Sher Moohummud, a great *savant* of Roree, gave the dinner to the principal tax gatherer of Khypoor, who sent a *nuzzur*, exceeding the expense of the entertainment, which cost about eighty or ninety rupees. He and she goats were cut in pieces and stewed to rags in large copper cauldrons; and salt, garlic, turmeric, blackpepper, cocoanuts, onions, and the seeds of black cummin, coriander, and anise

were pounded and mixed with the meat and some ghee added after it was removed from the fire.

Another dish consisted of rice served in the water in which it was boiled, and seasoned with salt, ghee, and lime juice.

A third dish, called I think *Rukta*, was made of white pumkin cut in small slices, parboiled, and thrown into about eighty pounds of *duhee* or coagulated milk, and served with cayenne pepper, salt, onions, and garlic. Every one was helped to a small cup of *rukta*. The rice was thrown into large earthen platters each capacious enough to allow eight or nine persons to sit round it, and the meat was heaped on the rice and a little *rukta* poured over it. The Company dined in the open air and were much scattered. Some sat on mats and blankets they brought with them, and the greatest number on the bare earth. It would have been pronounced a shabby banquet in India. According to a Sindian custom, each groupe before they drew to the platters, looked cautiously round, to ascertain if an enemy not bidden to the feast, was watching them. They devoured the meat in unseemly haste and it was over in about an hour.

The Belooch, Puthans, Moghuls, and other northern tribes, settled in Sind, are tall and well made, and the upper classes have dark brilliant eyes and expressive features. They as much surpass the inhabitants of Oude and the Delhi Territory in bulk and stature, as the latter do the tribes of Bombay, Bengal and the Konkan. In complexion, they are fairer than the Bengalees but less so than the Moosulmans of Northern India. They let their beards grow to a great length regarding a well covered chin as a handsome and becoming ornament of the face. Asiatic monarchs, like the early French Kings (the Franks,) never allow the scissors to touch their beards, and regard the beard as a mark of freedom and illustrious birth, and cultivate and prize it exceedingly. The Belooch also permit the hair of their heads to grow in wild profusion which I need not observe, is expressly prohibited by the Koran, for a Moosulman is enjoined to leave only a small tuft of hair on the crown of the head to afford Moohummud a hold in lifting him to Paradise.

The beards of the Belooch, like those of other Asiatic faces, are mostly black and the practice of staining them as they turn grey, is almost universal. An extract from the leaves of *hina* (*lawsonia inermis*) and indigo are used for the purpose, and if not renewed at proper intervals, changes the beard of a fiery red or deep orange colour. It is much the custom, among the Persians and Afghans, and they assist the operation by the vapour bath.

Hina leaves are ground in a mortar or stone hand-mills and immersed an hour in warm water until they acquire the consistency of thin paste. Women mix it with the paste and apply it to their ringlets to conceal the ravage which time has made with them, and it gives their hair a disagreeable smell.

The *hina* paste is strained and applied to the beard with paper and cotton cloth which are passed under the chin and over the head, and a warm situation, particularly a hot bath, favours this troublesome operation. It is left on four or five hours to produce a good colour. Afterwards the beard is thoroughly washed with warm water, combed clean and dried, and covered with a decoction of indigo leaves made into paste like *hina* and tied on the beard for double the period. It is generally put on at night and washed off in the morning, and the beard combed and cleaned. The dye should be applied once a week, to procure the colour, but is not usually renewed oftener than the tenth day.

The national head-dress is a circular cap called Shuhzadpooree. It is about eight inches in height and made of silk or cotton thread of several colours according to the prevailing fashion and taste of the wearer. Scarlet was the favourite colour at Hyderabad in 1839. The crown is flat with a sharp projecting rim, and of a different colour from the rest of the cap, and sometimes covered with brocade. A gay coloured band, the depth of the cap, goes round it with the exception of two inches in the front which is of another pattern. Caps are made upon very small blocks, and worn on the brows so that they just cover the crown of the head. They cost from six annas to five rupees, and common people wear one, three months, or until the threads fall in pieces, and are discoloured from dirt and grease.

Many Puthans, Moghuls and other foreigners, who have settled in Sind, adopt the Belooch cap, and dress to identify themselves with the conquerors of the country and to procure respect and security from oppression, and even Hindoos, in Government employ, wear it. The Ameer occasionally presents his servants with a cap or a dress, and they could not neglect his gifts without giving offence.

Suyads sometimes wear a three-cornered cap made of rich crimson silk sprigged with flowers, or covered with gold brocade, and a handsome one may be purchased at Shatta for 4 or 5 rupees. They are stiffened with paste or buckram and fold up like an English cocked hat.

A few Belooch have adopted the turban, but they usually prefer the national cap. Poor Sindees have cotton turbans either white or dyed

blue with indigo. They take from six to twenty yards of cloth about sixteen inches wide, and cost from 6 annas to 2 rupees.

Slippers are of brown leather made of a peculiar form, and the soles stitched together with cotton thread. They cost half a rupee per pair, and an inferior kind six and seven annas. Poor tradesmen and manufacturers change their shoes every six months and sometimes twelve months.

The upper garment (*cholo*) of the Sindees, is a loose shirt of white cotton similar to the smock of an English ploughman : it has a low collar fastened over the right breast and reaches below the knee, and takes six or eight yards of cloth. The pastoral tribes of the desert and poor farmers, usually dye the frock blue, and other classes a sort of yellowish brown colour with extract of turmeric and pomegranate shells. Some wear a loose waistcoat with a cotton sheet (*bochun*) twisted over it, containing from six to twenty yards of cloth according to the means, and taste of the wearer.

Their trousers or drawers are of course cotton stuff usually dyed blue, made very full, low in the seat, and rather tight above the instep. Some reach only to the small of the leg and are fastened at the loins with a running string. Tradesmen and manufacturers allow themselves four or six suits of clothes in the year.

The higher ranks wear round the waist a *loongee* made at Thatta of mixed silk and cotton threads of gay colours. The middle ranks have *loongees* of white cotton with blue cross bars six or seven cubits long with a border of crimson silk and cotton mixed, and the poor gird their loins with a bit of coarse cotton cloth.

Some women of the lower class wear drawers (*Sootun*), but ladies who are behind the curtain and do not quit their chamber, wear petticoats confined at the waist with a string. Cotton drawers are sometimes striped red, made full to the knee, and tight below it, leaving an opening scarcely wide enough to admit the foot, and falling under the heels.

Their body is cased in a sort of spencer or boddice with short tight sleeves : it reaches to the waist and is tied above and below the bosom with strings, leaving the back exposed. The spencer is dyed brown, red, or dark blue, and sometimes prettily worked and spotted with coloured silks and covered with talc spangles fixed on their leaden medallion, which are also used to decorate mantles and petticoats. They are put on with gum and other adhesive substances.

The following list exhibits the wearing apparel and its cost, of a landholder of the middle class, and of Government officers, in Khympoor.

	Rs. As. Pys.		
<i>Cholo</i> or Shirt of coarse cotton called 'Udhotur' of Khympoor manufacture, 20 cubits, at 28 cubits per rupee . .	0	113	0
<i>Bochun</i> or mantle of the same material 28 cubits long . .	1	0	0
<i>Sootun</i> or Drawers 11 cubits at 9 cubits per rupee . .	1	3½	0
<i>Loonges</i> of striped cotton	2	8	0
Shahzadpooree cap of yellow silk and crown of red cotton. .	1	0	0
Pair of Shoes	0	8	0

 Rs. 6 15½ 0

The three first articles on the list are sewn at home, and the usual allowance is six suits in a year which cost . . 17 11½ 0

Six Caps 6 0 0

Four pair of Shoes 2 0 0

Total cost of a dress annually about £ 2-11. Rs. 25 11½ 0

About 4s. 6d. are sufficient to provide a poor person such as stone-cutters, silk and cotton weavers, washermen, leather cutters &c., with a suit of wearing apparel, and women of this class may be clothed for 4 or 5 shillings.

A man requires :—

A cotton <i>chola</i> 12 cubits 6 annas, sewing 1½ anna . .	0	7½	0
A cotton <i>Bochun</i> 18 cubits 9 annas, sewing 1 anna . .	0	10	0
Drawers, of cotton cloth 10 cubits long 1½ cubit wide 5 annas, sewing 1 anna	0	6	0
Cap 6 annas; or cotton turban 12 cubits long, the same valuse	0	6	0
Shoes 7 annas per pair	0	7	0

 Rs. 2 4½ 0

Chola 4 per annum, at annas 7½ each 1 14 0

Bochun 4 per annum, at annas 10 each 2 8 0

Drawers 4 per annum, at annas 6 each 1 8 0

Cap 4 per annum, at annas 6 each 1 8 0

Shoes 2 pair per annum at annas 7 each 0 14 0

About 16s. 6d. per annum, Rs. 8 4 0

A woman requires :— Rs. As. Pys.

A cotton petticoat (puro), 24 cubits golong and 2 cubits wide

1 rupee, sewing 2 pys. . . . 1 0 0 Four per annum 4 3 2

A Boddice (*Choollee*) of cotton cloth 4 cubits long and $1\frac{1}{2}$ cubit wide, 2 annas, sewing 2 as.

0 4 0 ditto 1 0 0

1 4 2

A mantle or sheet (*Chuddur*) 20 cubits long. It is thrown over the head, envelopes the figure, and descends to the heels, cost 12 annas, sewing 1 anna

0 13 0 Four per annum. 3 4 0

Shoes 7 annas per pair . . . 0 7 0 Two per annum. 0 14 0

2 8 2

9 5 2

Drawers take about 9 cubits of cotton cloth, $1\frac{1}{2}$ cubit wide and cost 8 annas and 1 anna sewing

0 9 0 Four per annum. 2 4 0

Clothes are generally made by the females of a family. Women sometimes wind a cloth or mantle round the body and veil their features like Indian women.

The Ameer's dress costs about £ 7 10, and he is said to allow himself four suits a month. The cast off suits he gives to his servants

A Chola costs 3 0 0

Drawers 10 0 0

Loongee 50 0 0

Roomal or Handkerchief . 1 0 0

Cap 10 0 0

Shoes 1 0 0

Rs. 75 0 0

The dress of ladies of the Ameer's Haram costs about the same, and they wear also a silk *Uorungshahes* of Persian or Toorkish manufacture, worth 30 or 40 rupees. The best *Uorungshahes* are usually red and studded with emeralds, pearls, and other precious stones arranged in patterns. There are some in the Palace valued at 2,000 rupees, and Meers Roostum and Ali Morad have each one said to be worth 5,000 or 6,000 rupees.

So strong is the women's passion for jewels and ornaments, that even the poorest lay by a trifle out of their scanty earnings to gratify it, and I recollect seeing a female at work in a field at Sukkur covered with filthy rags, who had ornaments on her person worth twenty rupees. A triple amulet of silver round her neck cost alone six rupees.

The gold and silver ornaments worn in Khypoor and Moghulee, are more remarkable for their weight and number than delicacy of finish.

The *Chotee Phool* is a medallion for the back of the head.

Tiko. A large oval forehead ornament of gold or silver, painted three or four colours usually red, green, and yellow. A similar ornament is worn in India by shop-keepers wives and prostitutes, but not by peasants. The peasant women of Sind wear the *tiko* at feasts and holidays, and fix it on the middle of the forehead by gold or silver chains (*daomree*), which are brought across the forehead and fastened with hooks behind the ears, or to the crown of the head. A gold *tiko* cost 32 rupees and a silver one 1½ rupee.

Punra from seven to sixteen ornaments worn in the rim of the ear with pearls or silver beads.

Nusbee worn near the orifice of each ear.

Joomuk suspended before the ear to cover the orifice.

Chupla gold or silver wires set with about a hundred small turquoise stones worn in the middle of the rim of the ear.

Boolu a small ring set with pearls worn through the cartilage that divides the nostrils.

Nut ring generally set with three pearls worn in the right nostril. It is always gold, and the lowest half swells into a crescent form. The gold costs from 5 to 9 rupees. A poor woman will have a nose ring worth ten rupees of which the gold costs five and a pair of pearls five. Country people have a cumbrous description of nose ornament resembling in shape and size the two handed instrument used in India to cut betel nut.

Kundhee necklace of gold or silver beads strung on silk threads and falling below the bosom and fastened to an angular barrel-shaped ornament (*poollo*.)

Taweez, three square amulets of gold or silver, sometimes coloured green or red, suspended round the neck by silk threads.

Sookree, an oval ornament suspended round the neck and below the bosom.

Zunjeeree, a double chain which is passed over the neck and across the loins and attached behind and before to oval medallions, and falls below the bosom.

Chelkee, a waist chain.

Dorhir, armlet of three barrel shaped ornaments like the *pootlo*, worn below the elbow.

Banhee, long bangles of embossed gold or silver, worn from the wrist to the shoulder leaving only a small opening at the elbow joint, so that the arm is in fact cased in metal. Ivory armlets are turned on a lathe and sold by weight, and a sufficient number to reach from the wrist to the shoulder may be purchased for 25 rupees. They have a clumsy and disagreeable effect on the sable skins of the women.

Morse, pointed bangle of gold or silver fastened with silk threads on the wrist.

Wadolu, *Mungloo*, and *Kungur*, three kinds of bangle for the wrist.

Moondree, seal rings worn on the fingers. A chain (*wung*) is attached to the ring on the middle finger, carried round the thumb and fastened to the bracelet.

Wehr, ring worn on the fore finger of the right hand.

Aenu, Mirror ring worn on the thumb.

Kuriyon, heavy silver anklets each weighing from 40 to 100 rupees.

Ghinguroon, anklet worn below the *Kuriyon* and fastened with an ornament (*noora*.)

Paenzeb, silver anklet worn below the *ghinguroon*.

Ungoothee, angular medallions fastened on the toes by rings and sometimes ornamented with blue enamel.

Men of the middle class wear a gold or silver finger ring with a white or red cornelian or other coloured stone, set in it. If set in gold it costs 8 or 9 rupees and 8 or 9 annas in silver. The stone costs a rupee.

Boys wear a ring (*walee*) through the lobe of the ear; an ornament (*Kewatee*) in the rim of the ear; or *Kungna* or bracelet on the wrist, and sometimes seal rings (*moondree*) on the fingers.

*Proceedings of the Asiatic Society, Wednesday Evening,
2d June, 1841.*

THE HON'BLE SIR E. RYAN IN THE CHAIR.

Mr. S. G. T. Heatly was proposed a Member by Dr. J. T. Pearson, seconded by the Secretary.

Books received for the Library of the Asiatic Society, 2d June, 1841,

Annals and Magazine of Natural History, Nos. 37 to 40, December, 1840 to February, 1841,.....	4
The Calcutta Monthly Journal, for April, 1841, 3d Series, No. 77, . .	1
The London, Edinburgh and Dublin Philosophical Magazine, 3d Series, vol. 17, Nos. 112 and 113 and vol. 18 No. 114, London, 1840-41,	3
Yarrell's History of British Birds, January 1841, part 22,	1
Ouchterlony's Mineralogical Report, Madras, 1841,.....	1
Dollard's General and Medical Topography of Kalee Kemaoon and Shore Valley, Calcutta, 1841,.....	1
Cuvier, Histoire Naturelle des Poissons Tome 15, et Planches, Nos. 389 à 420,.....	3
Journal des Savants, Septembre, Oct. et Nov. 1840,	3
Tassy, Doctrines et Devoirs de la Religion Musulmane, tires du Coran Paris, 1840.....	120, .. 1
Antiquitates Americanæ, Hafniæ, 1837, (in Danish and Latin,) 4to,..	1
Samlede Afhandlinger of R. K. Rash Kobenhavn, 1838. Fredil del, 8vo.	1
List of Mammalia, Contained in the Museum of the East India Company, (for distribution,)	
Pamphlets in Chinese Characters,	2

Read the Report submitted by the Officiating Curator for the month of May last already published in the body of the Journal.

Read Letter, from Mr. E. Blyth, dated, London, 30th March, 1841, ap-
prising conclusion of an arrangement for his passage to India per
' *Larkins*,' and expressing obligations for conferring upon him the ap-
pointment of Curator to the museum of the Asiatic Society of Bengal,
also forwarding abstract of a memoir on the wild sheep.

Read the following correspondence with Professor Wilson.

EAST INDIA HOUSE, 31st MARCH, 1841,

To

The Secretary of the Asiatic Society of Bengal.

SIR,

I have the satisfaction to inform the Asiatic Society, that at last the
travels of Messrs. Moorcroft and Trebeck have been given to the public.
The society is no doubt aware that the work was printed, and even
reviewed three years ago, at which period it was expected by the pub-
lisher that the map would have been completed. The unaccountable
and unjustifiable tardiness of Mr. Arrowsmith in the preparation of the
map has been the sole cause of the delay.

The Society was apprised as soon as Mr. Murray engaged to publish
the work of the nature of the arrangement, which had been entered into
with him. It was stipulated that the Society would guarantee him
against loss in case the book should not meet with a ready sale, either
by payment of the deficiency, or by paying for such copies as they might
desire to possess. If the book were sold, a certain number of copies
(40) should be placed at the disposal of the Society. Mr. Murray has
sold all the copies except the 40 thus reserved. They have been handed
over to me. A promise was given to Mr. Trebeck, the brother of the
traveller, that of the copies so received by the society, 12, should be
made over to him. As he was recently in town the 12 sets have been
delivered to him. Of the remaining, 10 have been sent to the Society
on board the *Tamerlane*. I have distributed six others in the following
manner :

- 1 To the Royal Society.
- 1 To the Royal Asiatic Society.
- 1 To the Royal Society of Edinburgh.
- 1 To the Asiatic Society of Paris.
- 1 To the University of Bonn.
- 1 To the Royal Geographical Society.

They have been presented in the name of the Society. There thus
remain 12 copies to the appropriation of which by myself I trust the

Society will not object, as I had much trouble in preparing the book for publication, having been obliged indeed to re-write the whole of it. Of these 12 copies, several will be presented to public Libraries. Of those sent to India, I take the liberty of suggesting that a copy should be sent to the son, and another to the daughter of Mr. Moorcroft. They are both in India. The son is, I believe, in the Madras Army, the daughter is married to an officer in the Bengal army. I am not able to furnish more particular directions as I omitted to ask Mr. Trebeck when I saw him, and I do not know where to apply to him; but it will probably not be difficult to obtain the necessary information in Bengal, from persons connected with the houses of Palmer and Co. and Cruttenden and Co. with whom Mr. Moorcroft was in correspondence.

Mr. Blyth has taken his passage in a ship that is to sail at the end of this month, I am in hopes that the arrival of the mail will bring the Society's approbation of the measure of making him an advance for outfit and passage, as without it, he could not have joined the museum.

I believe I have already acknowledged the receipt of the Bill for £200, for Mr. Prinsep's bust. The charge is 200 guineas or £210, the difference can be remitted hereafter. In the case of my own bust I paid it myself. The Society may do as it pleases about the repayment. Mr. Prinsep's bust has been modelled, and will I hope be as good a likeness as can be expected under the circumstances under which it is made; it will no doubt be worthy of the reputation of the Artist.

I am, &c.

(Signed) H. H. WILSON.

To

Professor Wilson.

SIR,

The Hon'ble the President and Committee of Papers of the Asiatic Society of Bengal desire me, in reply to your letter of 31st March last, to state that they have duly received from Mr. Blyth himself notice of his embarkation for Bengal to assume the office of their Curator. The Local Government have called upon the Society to reimburse the Court of Directors in the sum of £150 advanced to that gentleman. The Society, I am desired to observe, was not consulted before this advance was made, but the local Government have consented that payment shall be deferred until Mr. Blyth arrives.

Notice has been given to our Agents, Allen, Parbury and Co. to pay to your order £10 being the balance due on account of your bust, and we regret that your should have been called on to advance this sum on account of the Society. The Society is happy to say that the funds available for that of Mr. James Prinsep are ample; its members desire me to return you their thanks for the continued interest which you have evinced on this subject.

The Society observes with satisfaction that the travels of Messrs. Moorcroft and Trebeck, ably edited by yourself, have met with so ready a sale. The period of three years however, which elapsed between the printing and publication of the work might, in the opinion of the Society have allowed of a definite reference to it on the subject of the disposal of the 40 Copies to which by the terms of an ample and hazardous guarantee it was entitled. The Society anxious to improve its connections with scientific bodies on the continent of Europe, would have availed itself with readiness of the occasion thus offered, of making presentations on its own immediate account, of a work published only by its interposition.

40 Copies of Moorcroft's Travels due to Asiatic Society of Bengal.

12 Given under promise (of the Society ?) to Mr. Trebeck's Brother.

2 Intended for Mr. Trebeck's son and daughter.

6 Presented by Professor Wilson to learned bodies.

12 Taken by Professor Wilson.

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8 For the Asiatic Society of Bengal.

The receipt of the 8 copies sent to the Society will be acknowledged in due course.

I have, &c.

(Signed) H. TORRENS.

Secy. to the Asiatic Society.

Asiatic Society's Rooms,
Calcutta,
The 8th June, 1841.

The Secretary presented to the Society a valuable collection of coins, consisting of the following :

List of the Coins : presented to the Asiatic Society, by H.W. TORRENS, Esq.

I. Greek and Carthagerian Coins in 5 packets :

- | | |
|--------------------------------|-------------------------------------|
| 1. Ptolemy (copper) | 4. Five coins (copper) of Carthage. |
| 2. Ptolemy (copper) | 5. Silver coin of Carthage. |
| 3. Two coins of Melite (Malta) | |

II. Bad Roman copper coins :

One packet, containing 35 various coins.

III. Roman Copper coins in 14 packets :

- | | |
|------------------|---------------------------|
| 1. Minimus. | 8. Carus. |
| 2. Tiberius. | 9. Maximianus. |
| 3. Antoninus. | 10. Licinius. |
| 4. Faustina. | 11. Constantinus. M. (11) |
| 5. Lucilla. | 12. Constantius (6) |
| 6. Gordianus (2) | 13. Magrentius. |
| 7. Alexander. | 14. Decentius- |

IV. Copper coins of 12 Rajahs of Cashmere in 12 packets.

- | | |
|-------------------|--------------------|
| 1. Taga Deva. | 7. Kalasâ Rajah. |
| 2. Sangrama. | 8. Sankara Vermma. |
| 3. Sassala. | 9. Ananta Rajah. |
| 4. Diddâ Râni. | 10. Taya Sinha. |
| 5. Kshéma Gupta. | 11. Kersha Rajah. |
| 6. Gopala Vermma. | 12. Sugandhâ Râni. |

V. Copper coins of some of the Mussulman Kings of Dehli.

1. Three coins, Julal Shah, A.H. 841, (scarce.)
2. Four coins, Naser ood deen Mahmood, I.A.H. 643 to 644.
3. One coin, Noosrut Shah (usurper,) A.H. 790 to 800, (very scarce.)
4. Four coins, Mahomed Tughlaks, A.H. 725 to 752.
5. Four coins, Tughlak, A.H. 721 to 725.
6. Four coins, Kutbood deen Moobâruk, A.H. 717 to 721.
7. Four coins, Feroz 3rd, A.H. 752 to 790.
8. Four coins, Shums ood deen Iltutmsh, A.H. 607 to 633.
9. Three coins, Aboobukr, A.H. 791 to 793, (very scarce.)
10. Four coins, Mahomed, A.H. 837 to 850.
11. Four coins, Mahomed Adil, A.H. 960 to 962.
12. Four coins, Islâm Soor, 952 to 960.
13. Four coins Ala ood deen Masood, A.H. 640 to 643.
14. Four coins, Naser ood deen Mahomed, 2d A.H. 796 to 816.
15. One coin, Sikander Humayun, A.H. 796, (extremely scarce.)
16. Four coins, Bhatool, A.H. 854 to 894.
17. Four coins, Mubarak, 2d A.H. 824 to 837, (very scarce.)
18. Four coins, Naser ood deen Mahomed, A.H. 793 to 796.
19. Four coins, Ghias ood deen Bulbunn, A.H. 664 to 685.
20. Four coins, Moaz ood deen Kai-Kobâd, A.H. 685 to 688.
21. Four coins, Ala ood deen Mahomed. A.H. 695 to 716.

22. Four coins, Shahab ood deen Mahomed bin Sam, A.H. 588 to 602.

23. Four coins, Sheer Shah Soor, A.H. 947 to 952.

24. Four coins, Jelal ood deen Feroz, A.H. 688 to 695.

A beautiful set of casts of coins by V. Tregear Esq. was also presented.

Read the following List of Silver Coins of the Mehomedan Kings of Delhi purchased from Lieut. A. Cunningham by the Society.

Silver Coins of the Mahummudan Kings of Delhi.

PUTHANS.

A. H.	A. D.		Size.	Price.		Remarks.
				R.	A. P.	
588.	1192.	Shahab ood deen Mahummud,	1 Rupee	10	0 0	Type.
643.	1245.	Naser ood deen Mahmood,	1 do.	3	0 0	Unique & unpublished.
664.	1265.	Ghias ood deen Bullum,	1 do.	5	0 0	Common.
685.	1286.	Moozood deen,	1 do.	7	0 0	Rare.
688.	1289.	Jelal ood deen Feroz,	1 do.	7	0 0	Very rare.
695.	1295.	Alaooddeen Mahummud,	1 do.	5	0 0	Rare.
717.	1317.	Kutt ood deen Moobaruk,	1 do.	2	0 0	Very Common.
		Ditto,	1 ½ Rupee	7	0 0	Very rare.
721.	1321.	Ghias ood deen Tughlak,	1 ½ do.	1	0 0	Common.
				2	0 0	Rare.
725.	1324.	Muhummud Tughlak,	1 ½ Rupee	10	0 0	Type.
		Ditto,	1 ½ do.	10	0 0	Unique & unpublished.
947.	1540.	Sheer Shah, Fareed ood deen, 1	1 Rupee	1	0 0	Common.
952.	1545.	Islam or Suleem Shah,	1 do.	2	0 0	Very Common.
				2	0 0	Common.
13 at Rs.				57	0 0	

MOGULS.

963.	1556.	Akber, Roundjul julaleh,	Rupee	2	8 0	
		Ditto, Squarejul julaleh,	do.	2	8 0	
		Ditto, Char yareh rupee,	do.	2	8 0	
1014.	1605.	Ichangir Square, in beautiful preservation,	do.	2	8 0	
		Ditto, Round,	do.	2	8 0	
1037.	1628.	Shah Jehan,	do.	2	8 0	
		Ditto,	do.	2	8 0	
1068.	1658.	Murād Bukah,	do.	5	0 0	Extremely scarce.
1068.	1658.	Aurangzeb,	do.	2	8 0	
1118.	1707.	Behadur Shah,	do.	2	8 0	
1124.	1713.	Jehandar Shah,	do.	4	0 0	Very scarce.
1124.	1713.	Ferozhser,	do.	2	8 0	
1131.	1719.	Rafi ud darjât,	do.	10	0 0	{ Unpublished extremely rare.
1161.	1749.	Ahmed Shah,	do.	2	0 0	
1167.	1754.	Alumgir Sain,	do.	2	0 0	
1173.	1759.	Shah Jehan Sain,	do.	15	0 0	
1173.	1759.	Shah Alum,	do.	1	8 0	
1221.	1806.	Akber Sain,	do.	1	8 0	

18 Coins, 68 0 0

13 57 0 0

31 123 0 0

N. B.—The Mogul rupees are all in the most perfect preservation, having been selected out of 200 Coins at Delhi, at 2 Rupees each.

The Secretary submitted a sample of the Tooloot paper presented by Mr. John S. Torrens. In forwarding it that Gentleman writes, 'I was reminded of it the other night on hearing the Curator speak of the inconvenience caused by the rapid destruction of the labels, on the various specimens in the Society House. This paper is prepared at Nuddea, where it has long been made use of by the Brahmin's in their writings. It is proof against insects, and I am afraid to say the age of some writings on it, which have been produced before me in a perfect state of preservation. I am also told that moderately sized boxes, lined with it will secure papers deposited in them from the attacks of insects; and from some experiments, I have myself made, I should think the paper would be of much use in libraries by merely pasting a slip of it down the backs of books between the leather, another stitching. In records in public offices, it would doubtless be of use.'

'It may be as well to mention that it is impregnated with Sulphate of Arsenic.'

Dr. H. H. Spry presented on behalf of Mr. R. N. C. Hamilton, Commissioner at Agra, a beautiful specimen of the musk deer of the Himalya.

Mr. Hamilton in sending it, writes, 'I have sent to you a skin of a musk deer, quite perfect, the head is good, but from having been badly packed in the hills beyond Almorah, it is crumpled up. I know not whether it will be acceptable to the museum of the Asiatic Society, but if so, will you present it?'

The Hon'ble H. T. Prinsep Esq. presented several Chinese pictures and books brought round in one of Aga Kurboloi Mahomed's Ships, which had been engaged in going to the northward for cattle for the China expedition.

Read letter of 16th April, 1838, from Mr. C. C. Rafer, Secy. Royal Society of Northern Antiquities, Copenhagen, offering the establishment of a connexion between that institution and the Society of Bengal, and with this view presenting a copy of the 'Antiquities of America before the time of Columbus.'

Ordered that the civility be reciprocated by the presentation of a copy of the Transactions of the Asiatic Society, and that Mr. Rafer be requested to enroll the Society as subscriber to the publication.

Read the following letter from Mr. Acsoma Korosi of 22d May, 1841.

To H. W. TORRENS, Esq.

Secretary to the Asiatic Society of Bengal.

SIR,—I beg to acknowledge the receipt of your letter dated on the 15th instant, acquainting me with the resolution of the Committee of papers, in answer to my letter to you.

I feel greatly obliged by the Asiatic Society's kindness, generosity and liberality towards me, in having accepted my resignation, in having declined to accept the money, which I most willingly and respectfully offered to repay, and in having permitted me to remain at this place until my departure from Calcutta, granting me in the same time a monthly allowance of 50 rupees for which I return herewith my respectful thanks, and beg to be kindly excused from accepting the offered monthly salary; since I cannot employ the money. Should I be successful on my intended journey to Tibet, to find an opportunity for improving myself in the language and literature of that country, and to procure some interesting works, I shall then take the liberty to apply to the Asiatic Society.

I sincerely declare herewith that, if not hindered by death, I intend to return again to Calcutta, and to acquaint the Society with the result of my peregrination.

I beg to remain with great respect,

Sir,

Your obliged and obedient servant,

A. CSOMA KÔRÔSI.

As. Society's Rooms,
Calcutta,
22d May, 1841. }

This letter having been read, the Hon'ble the President observed that that eminent scholar was not less remarkable for the high and gentlemanly feeling which he had always manifested in his intercourse with the Society than for his great erudition, perseverance and enterprize. The expedition Mr. Csoma now meditated to Lassa would be undertaken wholly on his own resources, its object being the noble and laudable one of furthering the ends of Philological and Historical enquiry. The President trusted that should Mr. Csoma find himself in a position during his expedition into Thibet, to require aid, he would not fail to consider the Asiatic Society of Bengal as gratified by being able to lend their assistance to so esteemed a co-adjutor.

The Asoka stone bearing the Palae Inscription, forwarded by Major Thoresby. The mass of granite bearing the Asoka Inscription, fac-simile and translation of which was published in No. 95 of the Asiatic Journal, was laid in the Society's rooms for the inspection of the meeting, having arrived only four days previously. This the most ancient (B. C. 250) and one of the most valuable of the relics of Indian Antiquity in the possession of the Society, was inspected with extreme interest by all the Members present.

It is in admirable preservation, and the characters are cut with distinctness and elegance. A careful comparison with the published fac-simile shewing that it is perfectly correct. The Society have now by the intervention of that zealous antiquarian Capt. Burt, and the obliging kindness of Major Thoresby, been placed in possession of an *Original Edict of Asoka*. It is the decyphering of the character in which the Edicts of that Monarch are written, and the interesting and important historical results deduced from the interpretation of them, which have so greatly contributed to raise the reputation of the Society among learned bodies in Europe, the credit and the merit of the discovery being wholly due to the late Mr. James Prinsep.

It was suggested that on receipt of the bust of that lamented and distinguished man, the inscription now before the meeting, could not be better placed in the museum of the Society than at the foot of the Pedestal, which is to bear his effigy.

For the presentations and contributions, the thanks of the Society were accorded.

CR. J.

JAN 10 1936

