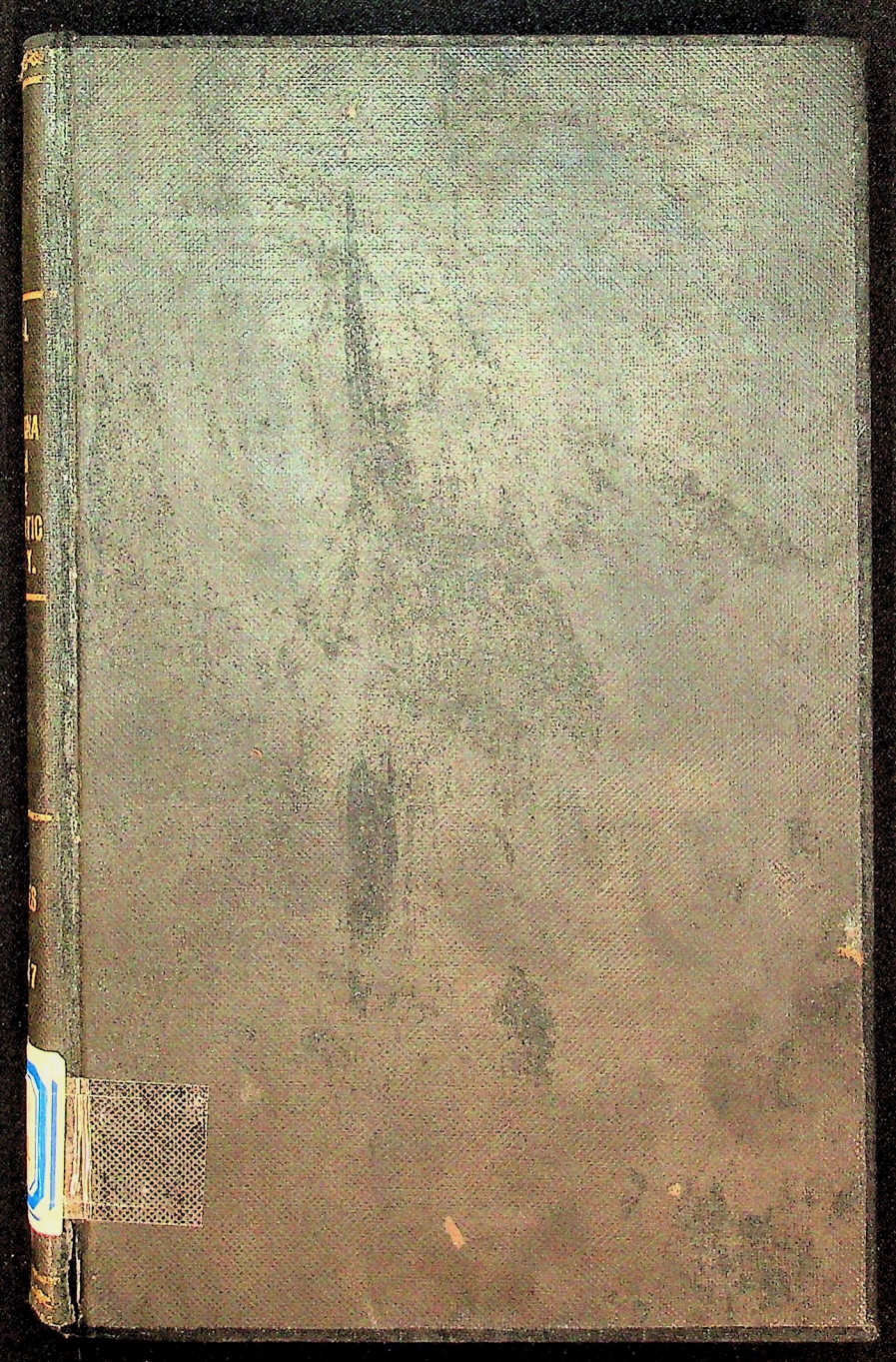

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ARTICLE I.

SKETCH OF A JOURNEY FROM CANTON TO HANKOW THROUGH THE PROVINCES OF KWANGTUNG, KWANGSI, AND HUNAN, WITH GEOLOGICAL NOTES.

BY ALBERT S. BICKMORE, A.M.*

On the 7th of August 1866, I left Canton in company with Mr. C. L. Weed, photographer at Hongkong, and Rev. Mr. Nevin of Canton, on a journey into the interior.

Our course, at first, was westward for about sixty miles through the great delta of the Sikiang, whose low, fertile fields spread out widely along the river banks and support a most dense population.

Along the borders of these low lands, rise serrated mountains—some peaks attaining an elevation of fifteen hundred to two thousand feet, their sharp ridges and projecting spurs, coming out in strong relief, on account of the scanty vegetation on their sides. To one who has been journeying in tropical lands, and especially among the dense forests of Sumatra, these mountains appear surprisingly bare; and only the more so, when he considers he is but on the verge of the temperate zone. This nakedness appears to be a universal characteristic of mountain scenery in China, but it is not the fault of the soil or the climate, for wherever the little pines are suffered to rise they show a vigorous growth. The cause of this universal deficiency in forests, seems to be the frequency of rebellions that have swept to and fro over the whole

*Read before the Society February 17th, 1867.

empire like a desolating scourge. In a few days, the Chinese can rebuild their low, mud houses, but nature requires years of continued peace to cover her mountains with forests, and rebellion has followed rebellion too quickly for her to accomplish the ever recurring task; and besides, the people do not care to labour much where there is a probability that outlaws will profit by their industry. Yet it is true they do raise some trees in a few places; but over the wide area that I have travelled not a tenth part of the soil is thus improved that might be, and then the trees are generally cut down before they attain any size; and this in districts whose population is numbered by the hundred thousand, and nearly all living in houses whose walls are of mud, and their rafters and floors the only wood they contain.

The old trees occasionally seen in groves around the Buddhist temples that only owe their preservation to the superstitions of the destroyers, show what splendid timber thousands of hill sides in China might yield.

But in regard to the low lands, it hardly seems possible that they could be made to produce more than is raised at present—two full crops being obtained nearly everywhere throughout the empire.

The continued fertility of these lands is due, no doubt, chiefly to two causes: first, the Chinese are careful to save everything that can possibly serve for manure, in some places even to the hair they shave from their heads; and secondly, these low lands are all, or very nearly all, subject to floods, at least once a year, and a deposit of fine mud is thus spread over them, just as in the valley of the Nile.

Following up the Sikiang through a deep pass in the first mountain range we came to the city of Shauking, where the Viceroy of Kwangtung and Kwangsi resided when the Portuguese first appeared off the Coast. At present it is mostly in ruins and its population probably does not exceed 20,000.

About two miles behind it rise the famous Marble Rocks or "Seven Stars," like dark, sharp needles out of the low green plain. Mr. Nevin and I measured them with an Aneroid barometer, and found them to range from one hundred to one hundred and fifty feet above the plain, though they have been reported at nearly twice that height. The rock is a highly crystalline limestone, of a dark blue colour on the weathered surfaces, and of a rusty iron tinge where large fragments have been lately detached; the whole traversed in every direction with milk-white veins, and completely

fissured by joints and seams. They form as striking objects in the surrounding plain as the "Little Orphan" does in the waters of the Yangtse, and also like it, contain groups of little temples in the natural niches in their sides. Large temples are ranged at their feet, and one which we entered contained in the principal hall three images of bronze, six or seven feet high. In another room I noticed an idol with six arms. The whole building was going rapidly to decay, and it was only after much searching that we succeeded in finding two poor monks preparing a scanty meal in the refectory—the last place they were willing to desert in the whole temple.

Climbing up a steep, narrow stairway that rises diagonally across the face of the precipice, we reached a second temple, perched high in a little nook. Along a part of this stairway, a rude, heavy chain was fastened to the mountain side, that the timid and weary might help themselves onward to the temples above; and many must have been the pilgrims that ascended this difficult way, if we are to judge from the depth of the places their feet have worn in the solid rock.

The entrance to this temple was through a gateway or portal of loosened bricks, that leans over the precipice and threatens to fall with the first person who sets foot within it, and immolate him to its heathen God.

The priests informed us that this temple was built two centuries ago, when Shauking was a great and flourishing city; now, the monks can scarcely beg enough from their poor neighbours to satisfy their immediate necessities and their once splendid temples are rapidly becoming heaps of ruins. Here, as is frequently found in masses of limestone, several caves occur. We entered one of a bell shape. Its floor was mostly covered with water and a bridge led us to a platform at the farther end. As we were crossing this Stygian stream, we were saluted by a loud, fierce barking; but no other charm was necessary for us to safely pass the canine guardians than a show of our canes.

Many tablets have been cut in the rock and along a stairway that brought us to a picturesque temple, where the cave opens to the sky on the opposite side.

During the excursions in the vicinity of Shauking, both my companions became quite ill from the excessive heat, and at my urgent solicitation concluded to return and let me continue on alone.

In the second day from Shauking I came to "Cock's Comb Rock," a huge wall or dyke of limestone, with a crest so jagged that the name the Chinese have given it, accurately describes it. Northeast from this in a small plain is a conical hill of the same rock, whose whole interior has been washed away, forming a much grander cave than the one previously visited in one of the "Seven Stars." All these rocks have the same characters and probably belong to the same geological period.

All the mountains in these regions are composed of fine, hard, silicious grits, which in some places are compact and flinty, i. e. quartz rock or quartzite, in others as soft as sandstone; and besides these, of slates that are interstratified with these grits, and in some places are soft clayslates, and in others as hard as shales. Half a mile below the little village of Kok-han on the left bank of the Sikiang, just before I reached the boundary of Kwangsi, I found these grits and slates *resting immediately upon granite in a nearly horizontal position.* The granite at this place was changed to gneiss to the depth of a few inches beneath these overlying sedimentary deposits.

Two miles below this village, rises "Ornamental Monumental Rock." It belongs to the lower part of this series of grits and shales, but is composed of a coarse conglomerate, and perhaps represents the conglomerates observed near granite in other parts of the empire.

Crossing the river at "Cock's Comb Rock" we came to a small village and anchored for the night astern a little gunboat. On consulting my map, I found, "*A favourite resort for robbers*" written round the next bend about half a mile up the stream; but I believed we must be safe with a gunboat so near, and taking care that my revolver was in prime order and that a heavy sword was within my grasp, I lay down determined to sleep, despite a continual din of tomtoms, and the most extravagant crying, and shrieking, and groaning of some women near by, who were lamenting the decease of a friend or relative. Late in the night, the watch on the gunboat began calling out loudly, then my boy and boatmen joined in, and though I could hear the noise of approaching oars, there was no reply.

The next instant the gunner on the gunboat fired his cannon, and at once the men in the strange boat all answered in the meekest and humblest manner. Our would-be robbers had that time mistaken their prey. This is but an illustration of the noises and alarms that occurred frequently, all the way to Hankow.

As we slowly ascended the river by poling, tracking and sailing, we stopped several times a day, that I might collect specimens of the rocks, and ascertain the dip and strike of the strata. In a week, we reached Wuchau, the last missionary station in this direction. Here I met Rev. Mr. Graves of Canton and induced him to accompany me up the Kweikiang or Cassia River as far as Kweilin, the capital of Kwangsi.

It is so dangerous ascending this river on account of robbers, that boats only leave Wuchau, when several are ready to go, and can keep together and afford each other mutual assistance in case of an attack. As an additional protection the mandarin offered to send along with us a gunboat, but only one policeman appeared and he carried no arms.

The boats used on this river are quite different from those seen at Canton. They have flat bottoms and curve up high at the bow and the stern, that the helmsman and a man on the highest part forward may see some distance ahead and avoid the rocks when they come down with the rapid current.

The principal article carried up the river is salt, and notwithstanding our boatmen all agreed not to bring a particle on board, they did buy a considerable quantity and tried to secrete most of it in one part of the boat. We very plainly informed them that if they left it there, it would go overboard. They finally—as nearly as I could ascertain—bought a permit for a part of it, and smuggled through the rest. This smuggling is so common, and so little regarded in the light of a crime, that I was repeatedly assured that the mandarin boats, which are carrying officials and therefore not liable to be searched, never go up or down any of these rivers, without improving every opportunity of evading the custom dues. Every day or two we came to a small house, with two large poles in front bearing large triangular flags, and there we were always obliged to stop and allow the boat to be searched by fierce looking fellows, each armed with a long stick pointed with iron.

Ascending this river is but little else than dragging a boat up one continued series of rapids, and though ours drew but five or six inches it sometimes seemed as if the boatmen would not be able to get her along any farther. This shows well the shallowness of the stream at this time of the year, and also the unfavourable fact that steamers can never be used on the river. The strength of the current is indicated by the fact that the

boatmen at Wuchau reckon fourteen days to reach Kweilin, and four days to return.

For the first hundred miles we passed only small, scattered villages, each having on the top of the highest hill near it a rude fort, where they keep their extra rice and clothing; for every village pillages on every other village, and on the boats that pass it, whenever they dare. These fortified hill-tops reminded us of the pictures of the middle ages drawn by historians, but these people observe even less law and order, than those of those early times. As an illustration of the perfect anarchy that obtains throughout the whole region, I may mention that on our third day from Wuchau we passed a mandarin boat that had been robbed of everything on her first night from Kweilin—the officials even not being able to escape these desperate thieves.

All along the river the mandarins were very kind to us, but kept asking how we could dare to come there, where only one foreigner had ever been before; and he, though he chanced to escape from the people of Kwangsi, was murdered when he got into Hunan. They referred to an eccentric genius who succeeded in reaching Hankow but was quite stripped of his clothing. His difficulties with the people were certainly one cause of their hostility to us.

Beyond the hien city of Chauping the country becomes somewhat more cultivated, yet it is very sparsely peopled and there is no need that a single man should leave China in order to find plenty of rich land to improve. The river here flows through deep passes, and we entered one called "Forest Pass," as the bright day was darkening into twilight. The rock was of hard, silicious grit, and quartzite and sharp peaks in the range rose up to a height of 1,600 or 1,700 feet. Like the famous Shauking Pass, this is also a cleft in a mountain range; but while that is about six hundred yards wide, this is but from fifty to one hundred and fifty, and as we sailed along with such high overhanging precipices on either hand, the effect was far grander than anything I have elsewhere seen in China. As night overtook us while yet in the pass, we moved our boat to some huge rocks by the steep bank, and then climbed to the edge of a neighbouring ridge and waited to see the full moon, whose soft light was just then appearing in the eastern sky. And when her silver disk rose over the jagged edge of the highest peaks, and threw long, pointed shadows down the steep sides of the pass, we had before

as such a view as a lover of crayon sketches might well roam the whole world over to enjoy.

As we approached Pingloh, a high range of needle shaped peaks sketched across the river from east to west. They are composed of the same dark blue, highly crystalline limestone traversed with white veins, that had been previously noticed in the Seven Stars at Shauking, and Cock's Comb Rock on the Sikiang. Here a pass gave a section showing this limestone apparently resting on the previously mentioned grits.

In the shady places were large quantities of a beautiful blue Convolvulus in full bloom, of the same species as specimens Mr. Graves had frequently found in the limestone caves near Shauking.

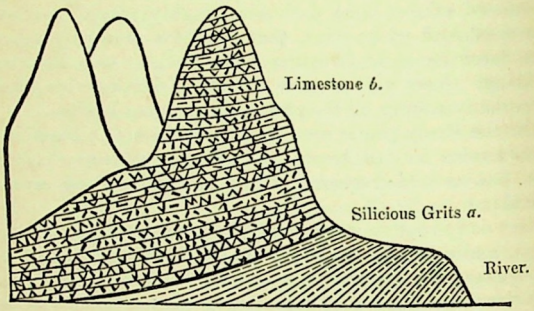
Our daily routine was to walk in the forenoon till the sun was high, and again in the afternoon till the boat had found a safe anchorage, Mr. Graves collecting plants and sketching a map of the river, and the writer collecting geological specimens, ascertaining the dip of the strata and the direction of the elevation—details too numerous to be given in full in this sketch.

On the evening after leaving Pingloh as we were following the river round a high bluff, we suddenly found ourselves on the edge of a valley ten or twelve miles broad and extending farther than we could see to the right and left. In every direction it was perfectly bristling with sharp peaks of limestone. The strata of this limestone were nearly horizontal, and once the whole valley was filled with this deposit, which in the course of ages has been worn into deep channels, that have kept widening until only sharp peaks are left of what was originally a broad continuous sheet of solid rock. From a single low position on the river bank I counted one hundred and ninety two separate peaks. The highest was, I judge, 1,200 feet above the plain, but even this probably does not represent the original depth of the formation.

On the low, level plain the people were cultivating rice, indigo, peanuts, sugar cane, millet and cotton; and the bright green colour of these crops contrasted sharply with the dark rocks rising abruptly up from the level lands; and made the whole view the most striking and picturesque seen on the journey.

A similar view is to be enjoyed among the contorted and fractured limestones, on the banks of the Tchussovaya, on the western flanks of the Ural; and it is probably to this same Devonian period, that these limestones and those previously

mentioned belong. On passing out of the limestone region the following section, No. 1, was obtained, a little above the market place, Hingping.



The limestone here rests *conformably*, as near as I could judge, on the grits that at Kokhan were found in turn resting on granite.

Nearer Kweilin the country becomes somewhat more level and better cultivated, and large water wheels twenty or thirty feet in diameter are common along the river banks where the rapids are strong enough to keep them moving. The water is raised by pieces of bamboo that are fastened to the rim at a slight angle and bring it up and pour it into a trough as they reach the highest point and begin to descend on the revolving wheel.

A small pagoda perched on a high rock and a hill through which there has been chiselled a huge hole, were pointed out by our boatmen as indications that we were approaching the capital of the province of Kwangsi.

Instead of being situated on the west side of a lake as represented on the best maps, it is on the west side of the Kweikiang, which here is only a small stream but may overflow its banks during the rainy season. The walls of the city are of blocks of limestone with a parapet of bricks.

We carefully closed our boat, and in the evening rowed up to the city. I at once, sent my boy to the Yamun to ask for chairs and policemen to protect us to the next city, as it was necessary to make a journey of fifty miles by land. All arrangements could not

be made till the next day; meantime, we were careful not to let any one see us, but in some way it oozed out we had come and early in the morning all the streets and boats near us were packed with people anxious to get a sight of the foreigners. At first we tried to escape them by moving rapidly from place to place, darting hither and thither like a bird trying to escape from a hawk; but we met a crowd every where, and concluded the better way was to go out on the front part of the boat and exhibit ourselves by turns to the curious public. When one throng had satiated their curiosity they generally left us, but they were immediately replaced by one still larger, until it seemed as if all the chinamen south of the Great Wall had come out to gaze at us. Meanwhile my boy arrived from the Yamun stating that all was ready, and the mandarin begged if I was going to Hankow I would proceed at once, for the whole city was so much excited on account of a proclamation that had been posted about, that he feared we might be attacked by so many he could not defend us.

Mr. Graves kindly translated the proclamation for me, as follows:

"*It has already been determined by common consent, that if any one has anything to do with the IMPS or rents them a house or any other dwelling-place, his house and his family dwelling shall be immediately burnt to the ground, and his whole family, male and female, old and young, shall at once be put to death.*

By Order of the Whole Provincial City."

Despite this formidable threat, I determined to continue to push on my way to Hankow. A great crowd gathered on the shore when I landed and the boys hooted and shouted, but I could not understand what they said and only hurried on my chair coolies through the suburbs, which were everywhere perfectly thronged. Two or three times I feared they would block up the street in front of me, and thus stop me altogether, but they seemed to have a suspicious respect for the barbarian and allowed me to pass.

When we came to the chief gate and were entering the city, some officials stopped my chair and drew me into their office from the press of the crowd, while they were instructing my coolies to go round the city and not through it. Here one of the coolies took this opportunity to run away, and it was a long time before another could be obtained, but I finally continued on between the city wall and the river, until we came to a great rock round

which we were ferried in a boat; and thus I was once more free from my persecutors. I also had the pleasure there of being able to walk myself, that I might hurry on my chair coolies at the top of their speed, and thus with all possible haste distance this city of Destruction.

Night however, overtook us when we were five miles away, and the two policemen guarding us, selected an inn in a little village, where we lodged for the night. After such a tumult it seemed so quiet and safe that I was tempted out into a neighbouring field, to note by the aid of an azimuth compass the direction of the valley we were to travel in on the morrow, and also the form of the mountains that bordered it. While I was absorbed in this view a man from the village passed by me and noticed the compass, so I shut it up and went back to rest, for fear he might think I was a geomancer.

Late in the evening the whole neighbourhood began to resound with a heavy beating of gongs and soon a large crowd, carrying torches, gathered in front of the inn and began shouting "KILL HIM! KILL HIM! KILL THE WHITE DEVIL!" I plainly saw they had come to rob me and kill me and feared the worst, but my policemen showed them my pass from their mandarin, and assured them that if they did me any harm the mandarin would behead them all and destroy the whole village. And after much spiteful discussion they offered to leave me on the condition that I should leave their village as soon as daylight appeared. The only crime alleged against me was that one of their number had seen me with a mysterious instrument observing the valleys and mountains, and they were all satisfied I had come to carry away the hidden treasures, which they were sure their land possessed.

Almost everywhere, when they saw me breaking the rocks, they at once concluded I was looking for gold, or silver, or precious stones. Another common belief is that a foreigner, who has blue eyes has the clairvoyant power of seeing straight through any quality of solid rock.

September 3rd.—At the earliest dawn, started up the valley to the north east, the general direction of the Kweikiang above Kweilin. The road or more properly path is only three or four feet wide and paved with blocks of limestone or cobble stone from the bed of the neighbouring river. Great numbers of coolies were passing to and fro, this being one of the four great high-

ways between the southern part of the empire and the valley of the Yangtse. The others are; that, from Kwantung over the "Meiling Pass" into the province of Kiangsi and down the Kan river to Poyang Lake; that from Lohchang over the "Lesser Meiling Pass" to Chinchau in Hunan; and one from Yunnan, the capital of the province of that name to Kweiyang, the capital of Kweichau, and thence down the Wu to the Yangtse.

At 10 A. M., the road came to a small tributary of the Kweikiang, coming in from the north west. On each side of this stream there had once been a large flight of marble steps nicely cut, and carefully laid, but now they are all falling apart and the whole work going to decay, the amount of traffic at present not being sufficient even to keep them in repair. On one bank was a small square pagoda-like tower, and near it two great iron pillars surmounted by a large ornamental cap. Around each pillar was an iron ring large enough for a sea junk. The people said they were to fasten robbers to—probably the Miautse, who live in the neighbouring mountains to the north and north west, and are said to come down frequently and plunder the smaller villages. Notwithstanding all such chains and iron pillars, these Miautse have maintained an uninterrupted independence, a proof of the continued weakness of the Chinese government in every dynasty.

At 2 P. M., stopped to lunch at an inn. The policemen insisted on my going into a small room and remaining there out of sight, till we were ready to start again, and after that, all the way to Hankow—a distance of eight hundred miles, I was so closely attended and so strictly guarded, that I found myself really a prisoner. I could make no detours to the right and left as I pleased, when we were passing objects of special interest. My compass I was obliged to carry under my vest, and only dared to take it out when we were away from any village and the road clear of coolies, but then my boy felt it his duty to remind me of the serious trouble it had just caused us; and besides whenever I looked at it often my policemen manifested a decided suspicion that I was a spy. Of course such restrictions narrowly limited my observations, yet I have no right to complain for all these measures were necessary for my safety. Through the province of Hunan I was constantly attended by one civil mandarin, one policeman, one military mandarin, and two or three soldiers.

2 P. M. came to Ling-sun, a hien city, 60 *li* from Kweilin. The Yamun was near the gate we entered, and the officials that quickly gathered round all seemed to be in good temper and regard me with pity rather than hate. I tried to give them some idea of my route by naming the chief places and marking out a rude map on the wall; but the policemen were afraid a mob might gather and took me to an inn where every room was full except one, and on one of the two beds in that, an old opium smoker lay stretched out, half stupefied with the drug.

It was properly more of a dungeon than a guest chamber. A single small piece of glass in the roof, which was little higher than our heads, admitted all the light we were allowed to enjoy, but my companion, at least, was blissfully indifferent to the inconveniences of our prison. Several small boys climbed up the partitions to steal a sight at their odd visitor, but I was becoming accustomed to such rudeness. Meantime numbers of the curious of both sexes, gathered in an outer room, and as a cloud of dust rose from the kang whenever I moved, it soon irritated my nostrils, and the whole party set up a loud laugh to think such a strange animal as a foreigner could *sneeze*.

After three hours, we continued on and passed out at the eastern gate. The whole city is a mere heap of ruins, and there are scarcely houses enough left, to line the single main street, so complete is the destruction made by the Taepings.

Surrounding the city is a small plain that appears very fertile and perfectly dotted with stacks of rice which the people are just now gathering.

A walk of thirty-five *li* brought us to Tai-ung-gong, a small village on the Kweikiang or Cassia river, for the water still flows towards Kweilin. Before we reached this place we crossed a small stream flowing into the Kweikiang from the north. In its bed I noticed pebbles of granite and porphyry, but all the rocks seen *in situ* were the common grits and quartzites. It contained many rafts of bamboos waiting to be floated down to Kweilin and Wuchau.

The valley here is nearly filled with small hills, but in this immediate vicinity only. Among them I gathered a beautiful blue bell, quite like that found on our own hill sides in New England. A kind of blackberry that grew in the old ruins by the roadside was ripening, and the opening of the asters also heralded the coming of autumn, as at home.

The next day we travelled fifty-five *li*, to the hien city Hingan. The water here flows to the *north*, and the water shed is a few *li* to the south west of the city. It is not natural but artificial; what were originally only small streams have been enlarged and connected by canals, but it is only during the rainy season that they can be used, and then not for boats drawing more than two feet. The water is kept for a time in these canals by building dams across them wherever a rapid would occur, and allowing a stream to flow only through a gap in the dam deep enough for a single boat to pass over.

Hingan is in the same ruinous condition as Lingsun. It is one hundred and fifty *li* in a north-easterly direction from Kweilin. The river there was still so low that I was obliged to go seventeen *li* farther to the village of Tan-ka-tse, to take a boat for Sinchau, one hundred and forty *li* down the Siang. Along this route the water was so low that we were continually thumping, bumping, and grating over the rocks and coarse shingle, especially in the gaps in the dams.

These dams occured every one or two *li*. They are made with a gap for boats to pass over by one bank, and by the other a sluice way, where as many as ten water wheels were sometimes seen one behind the other. It seemed as if there were more rapids in the fourteen leagues from Tan-ka-tse to Sinchau, than in the sixteen leagues from Kweilin to Wuchau on the other side of the water shed.

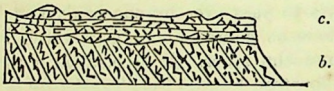
Sinchau is the chief city in all this region, and appeared nearly as large as Wuchau. It is not in Hunan but in the province of Kwangsi. There my boatmen bought some fossil Brachiopoda, which they all agreed in saying came from a waterfall ninety-three *li* distant among the hills.

Small boys gather them at the foot of the fall and bring them to the market to sell as curiosities. From the curved parts at the hinge, the Chinese call them "Hawks." A mandarin also gave me the same account of them. They probably come from the limestone already mentioned as resting on grits, see section No. 1.

The boundary between Kwangsi and Hunan is about one hundred *li* down the Siang from Sinchau. There, only low hills border the river, and the valley of the Siang really begins. All the way from Shauking near Canton to this point, the whole country is one mass of hills. Dark shales appear here, probably

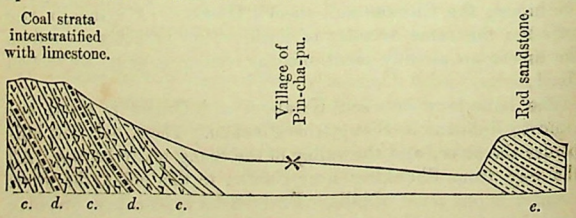
belonging to the coal rocks and apparently resting on the limestone over which we had been passing since leaving Hingan. In eight days from Sinchau, we reached Kiyang, which is situated on the left bank of the Siang, and not some distance back from it, as placed on the maps. Below this city, the country becomes thickly populated and well cultivated, and the temples which were all destroyed by the Taeping rebels appear everywhere newly built, contrasting in a marked degree with the dilapidated condition of the temples in every other part of the empire, and indicating the high prosperity of the people by whose contributions they are built. They are so numerous and form so conspicuous a part of every river scene along the Siang, that Hunan may properly be styled *the province of temples and the stronghold of Buddhism.*

Eight or ten *li* below Kiyang on the right bank, strata of limestone are seen resting on the ends of other limestone layers, as if the upper series belong to a wholly different formation—section thus:



The lower limestone has the jointed and fissured appearance of that represented by *b.* in section No. 1.

Eighty-four *li* below Kiyang, at the village of Pin-cha-pu, we passed a hill of limestone *interstratified* with coal. They were quarrying the limerock and using the coal obtained at the same time to burn it to lime. Dip of these strata 40° to the north, and a little further in that direction came red sandstone with a similar dip of 15° to 20°.—Section No. 3.



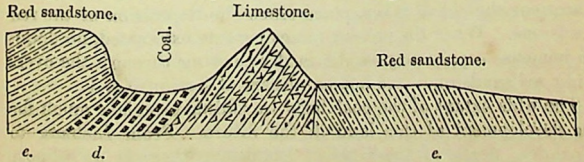
September 16th.—Stopped for the night at a little village one hundred and sixty-five *li* above Hangchau. As we arrived after dark no one saw me and I was left unmolested. All the evening there was even more loud talking and disputing, than I had been accustomed to hear, as if most of the villagers had been indulging freely in samshoo. Before we pushed off to anchor as usual in the stream, my boy asked the mandarin if he would like to take a walk along the front street, but he only shook his head in an ominous manner and replied "they are all ruffians, there." About ten o'clock very loud and excited talking began in a party on the bank near us, and soon one of them began screaming and groaning as if he had received his death blow.

Immediately his murderers brought him down the bank, put him in a small boat and paddled out close by us to the middle of the river, their victim all this time groaning more and more feebly and evidently dying. My boy said this man belonged to some other village and was carrying some money to Hangchau, and when the thieves had robbed him and he cried out for help, they wounded him and were then sinking him in the river.

By this time the officers at the Yamun commenced firing small cannon every ten or fifteen minutes, and kept it up regularly for some two hours.

I found we had thus unwittingly run directly into a nest of assassins, but I trusted no one had seen me, for that was the only way I could hope to escape alive. There was nothing for me to do, but keep as quiet as possible so as not to attract their attention, and leave the place at the earliest dawn. Determined when the event came to sell my life dearly, I threw open the lid of my revolver box and listened for many long, lonely hours, but finally fell asleep, and when I awoke again our boat was floating rapidly down the stream and this village of robbers was far out of sight behind us.

We soon passed the following section No. 4, and came to Li-chang, where some fifty boats were loading with coal.



This is the principal coal mine on the Siang. It is situated on the left bank, one hundred and forty-five *li* above Hangchau. As shown in the section, the coal beds rest on limestone, and this is also the case in Szechuen, in the coal regions near Peking, and probably in every part of the empire wherever both occur.

On the coal strata rests red sandstone, which originally covered all the coal deposits in this vicinity; the coal only appearing at the surface, where it has been thrust up through the overlying strata of sandstone, as seen in the section or when the sandstone has suffered very considerable denudation.

As we were but six miles from the village where the murder just described occurred, the mandarin sent to protect me, declared he would not allow me to land and travel through the mines; and I was therefore able to note only what could be seen from the river. All the "mines" that were thus observed, were merely deep pits in the sides of the hills, and consequently only "surface" coals are obtained. The engineers of steam boats on the Yangtse inform me, that the coal from this and the neighbouring mines has improved in quality considerably since the first was brought to market. It should be noted here, that the best coal usually occurs only below the water level, and the Chinese are obliged to stop when they come to that, for want of proper pumping apparatus.

The best coal in China therefore remains undisturbed, but there is much reason to doubt whether it will ever equal the best coals of England or America.

Hangchau is the great depot for coals in Hunan, and the military mandarin who accompanied me from that city to Changsha, the capital of the province, stated that, coal is mined at Kweiyang and Laiyang (see Dr. William's map of China), and also at Sinhwa on the Tsz'kiang. It probably occurs therefore everywhere, beneath the red sandstone that covers the plains of Hunan, though it is mined only when it outcrops on the borders of these plains or when it has been brought to the surface by elevations that have taken place since the deposition of the red sandstone. When the present mines become exhausted, no doubt an immense supply may be obtained by boring through the overlying red sandstone—see left-hand part of section No. 4.

The wide extent of the coal beds in China promises much for the development of this land in the future. From Lichang to Moukden, north of the Gulf of Liautung, there is an almost

continued series of coal mines on the flanks of the elevations that border the Great Plain.

The most important place for trade in Hunan, is Siangtan, ninety *li* south of Changsha. All the boats that come down the numerous branches of the Siang make this their point of rendesvous, and there is water enough for small steamers from Hankow, unless a bar occurs where this river empties into Tungting Lake. This place I crossed during the night and when there was a flood; besides, we did not follow the proper channel. When I reached this lake a heavy northerly wind had been blowing for six or seven days, and few or no boats had had crossed it during that time.

A southerly breeze then set in, and all the boats that had been harbouring in the many creeks and bays, came out on the lake; and at sunrise. I enjoyed a view only to be seen in this land that numbers its population by the hundred million. As far as the eye could see before us and behind us, and for several miles on either side, the whole surface of the water was perfectly feathered with white sails, some in sunshine, some in shadow, and others in the dim distance apparenty gliding along on a thin film of air. Twice I counted nearly four hundred and forty in sight at one time, and with the aid of my field glass fully one hundred more could be distinguished, all leaning over before the same breeze and all bound in the same direction. Many were loaded with tea, many with coals, and many were just swimming along under huge deck loads of round timber.

This shows the amount of carrying trade between Siangtan with Changsha, and Yohchau and Hankow and other cities down the Yangtse. It also indicates that Siangtan is the most important place up the Yangtse, that is not yet open to foreign trade and suggests the question whether this city should not be added to the list of open ports, when the treaty is revised in 1868.

Near Yohchau silicious grits and quartzites again appear, where the elevation that forms the water shed between Hunan and Kiangsi crosses the Yangtse.

October 9th.—After sixty-three days of continued travelling, reached Hankow, the distance from Canton by the route chosen being about twelve hundred miles. This journey was undertaken expressly to ascertain the kinds of rocks in southern China and the order of their superposition. Full series of specimens were

collected at every interesting point and the preceeding sections and remarks show the succession of the rocks to be: *First*, and lowest, Granite, on which rests the *second* formation composed of Grits and Slates *a.*, in section No. 1.

These are covered *thirdly* by old Limestones *b.*, in section No. 2. On these rest *fourthly* another series of Limestone Strata *c.*, in section No. 2, and *c. c. c.* in section No. 3 of the same age as the Coal Beds *d. d.* section No. 3 and *d.* section No. 4. These Coal Beds are covered *fifthly* by Red Sandstone *e.*, in section No. 3 and *e. e.*, section No. 4.

The limestone in section No. 4 is probably that marked *c.*, in section No. 2, but may be that marked *b.* in section No. 2 and section No. 1.

Fossil Brachiopoda were obtained at Sinchau probably from the Limestone Strata marked *b.* sections No. 1 and 2, and appear to belong to the Devonian period, but all further discussion concerning them is deferred until they can be compared side by side, with full series from large collections in Europe and America.

A very rare and valuable collection of fossil plants was given me by M. l'Abbe David of Peking, from the coal rocks near that city. They probably belong to the same age as a series sent by Prof. Pumpelly to Dr. Newberry, and which that palæontologist considers as later than the Carboniferous, and probably Triassic.

Besides the above questions in geology, it was a matter of some interest in physical geography to learn whether there was a water communication between the river system of the Sikiang and that of the Yangtse. I ascertained that there was such a communication, as already noticed, in some seasons of the year, but the canals need much enlarging to be of any commercial value. This communication is artificial and has been made in the following manner. The east and west chain of mountains, in some places called the "Meiling range," and in others the "Nanling range" is here composed of separate ridges which instead of extending east and west run parallel with each other in a direction N. 60° E. and S. 60° W.

The Kweikiang takes its rise near the northern end of one valley, while the source of the Siang it at the southern end of the next valley, and for some distance these streams are nearly parallel to each other but flow in opposite directions. It was only necessary to make a canal between the two at right angles to their courses and the communication was complete.

This was done near the source of the Kweikiang where previously only a very slight elevation prevented the water at that place from flowing into the Siang.

If there were large reservoirs along this canal to receive the surplus water during the rainy months, and pour it out during the dry season, as there are along the higher parts of the Grand Canal, boats could pass to and from Kweilin and Sinchau throughout the year. But the chief difficulty is not here near the watershed, but in the many strong and dangerous rapids that occur all the way down the Cassia River from Kweilin to Wuchau on the one side, and from Hingan down the Siang to Yungchau on the other. To improve the navigation of these rivers to a satisfactory degree would, I believe, prove nearly as costly as building a railroad, without offering all the advantages of the latter for the development of the adjoining country.

Besides the water communication between the Sikiang and the Yangtse described above, it has been supposed another might be found by following up the Sikiang directly westward to Sz'ching, thence north westerly to Hingi and Ngannggan in Kweichau, and thence northerly to some branch of the Wu River and so down to the Yangtse.

At first I proposed taking this route but decided on the one chosen on account of its being nearer the seaboard and therefore more immediately interesting. The topography of Hunan and the eastern part of Kwangsi being now sufficiently well known, it remains for the next traveller to take the second route through Kweichau and the central parts of Kwangsi and give definite information concerning the geography and geology of that part of the Empire. Such a journey will greatly increase our present knowledge of the wide ramifications of the rivers and canals in China—the completeness of her internal water communications being as much a wonder as the immense numbers of her population.

The route from Canton to Hankow, is the one proposed for a railroad between those cities, and I am able to state that there is no physical feature whatever that will render the work of any greater difficulty than in any hilly country. The great obstacle to carrying out such an undertaking will be the bitter hostility of the people to all foreigners, and their superstitious fear that any such work may affect the winds and rains, and deluge their crops with floods or parch them with heat. Again there seemed

to be but little produce transported either way between Kweilin and Sinchau.

From Sinchau and the other cities, Kiyang, Hangchow, &c., that we successively reached on our way down the Siang, many boats go laden to Siangtan and thence to Hankow, but they almost all return without any cargo. Along this part of the route there is a plentiful supply of coals at a very cheap rate, and wood enough for sleepers.

But I suggest that possibly a more desirable route might be: from Canton up the North River to Shauchau, and thence up a small stream in a northwesterly direction to Lohchang and over the Lesser Meiling Pass to Chinchau and down a branch of the Siang to Hangchau; provided this pass is not so high as to make deep cuttings or tunnelling necessary. All such difficulties would certainly be avoided by extending the line, as proposed, from Hangchau southerly to Kweilin, the capital of Kwangsi, and thence down the Kweikiang or Cassia River to Wuchau, but it is very mountainous between Kweilin and Wuchau and but comparatively little is transported either way.

The route over the Lesser Meiling Pass is the one by which the teas raised in the provinces of Hunan and Kweichau were transported to Canton when that city was the only open port; and when I was at Hangchau, the mandarins and boatmen all told me, that all their trade with the province of Kwangtung at present, was carried on by that route; and repeatedly they asked me why I did not come in this direct way, instead of selecting a route that had taken me twice as long. They also affirmed that there was no water communication between the source of the branch of the Siang near Chinchau and the source of the branch of the North River at Lohchang, on the south side of the water shed.

ARTICLE II.

TRANSLATION OF INSCRIPTION ON TABLET AT HANG CHOW, RECORDING THE CHANGING THE T'IEN CHU TANG (ROMAN CATHOLIC CHURCH) INTO THE T'IEN HAO KUNG.

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The saints of old spoke of T'ien (Heaven) as being composed of the two principles, *Law*[1] and *Measure;* what they meant by *Law* was the motive influence by which out of chaos[2] were engendered the double state of existence (male and female), the harmonious action of the five elements (metal, wood, water, fire and earth) and the succession of the four seasons. What they meant by (Shu) *Measure* was the sun (day), moon (lunar month), signs of the zodiac (solar time) and evolutions of the heavenly bodies.

With regard to Ts'ang Ts'ang T'ien[3] (dark blue heaven) that is only because of the deepness of the atmosphere, which being above the earth is included in the term T'ien (heaven, firmament).

When the I-ching speaks of the clouds moving, the rain pouring down and the universe in a state of transition, it simply denotes that the meritorious (beneficent) operations of heaven are all pervading. It does not state that $\frac{\text{above}\ 4}{\text{in}}$ T'ien besides T'ien is a being who directs the movements of the clouds and rains. In fact the Shoo-ching says "T'ien sees because we the people see, T'ien hears because we the people hear." This means that $\frac{\text{T'ien}}{\text{heaven}}$ neither sees nor hears, but that men derive their distinction between right and wrong, good and evil, from their own consciousness.[5] It does not say in heaven there is a being with the organs of ears and eyes, and who busies himself with what he sees and hears.

Even those wild men of Chi tung[6], Chow yen and Mung chwang, in their extraordinary and senseless $\frac{\text{discourse}}{\text{talk}}$ never went so far as to say that Heaven had produced a being, who is able, dwelling in Heaven, to bind and to loose it; and from the centre of space's void to order heaven its place to recede to[7], and, without authority become the Lord of Heaven.

In the time of Wan li of the Ming dynasty a Portuguese Matteo Ricci came to China and invented the term T'ien chu[8], Lord of Heaven; his doctrines gradually spread and were in the mouths of ignorant men and women. Those of his disciples who came to China undertook large building operations, dwelt in the various markets and spread all over the Empire. After the present dynasty had been established, the sacred ancestor, canonized under the name of the benevolent Emperor, (Kang hi) recognizing that these men were born beyond the long sea, and had come far for civilization, that, though their discourse was senseless, they were men of mind and intelligence, saw nothing to prevent their being taught reason; and allowed them to dwell in the capital (Peking), that by bathing in the fullness of the virtue of the sacred court they might, after a long time, change and attain knowledge, when they could return and teach their own countrymen the nature of Heaven and the bounties of earth. This was benevolence as profound as nature's height and depth! a beneficence which forgot nothing! Who would have thought that the habits of falsehood and obduracy were so deeply implanted (in them) that they could not be eradicated?

When the present Emperor (Yung chêng) came to the throne he was from the first aware of the wickedness of these men, and therefore, driving them south to Macao he did not permit them to reside in the interior of the country. He also ordered that the buildings they had erected as churches should be put to other uses. As these are too gorgeous, grand, superb and magnificent for people to dwell in with propriety, and as, if they are left empty, they will fall into ruin, the plan has been determined on of changing the church at Wu lin (Hang chow) into a temple to T'ien hao (Queen of Heaven). This plan will serve the double purpose of extirpating a religion of false gossip and obduracy, and of making an offering to a spirit who really has a beneficial influence over human destinies; and (there is the extra satisfaction of knowing) that this meritorious deed can be effected without trouble, and the action completed without expense.

The followers of Ricci have now been in China for two hundred years, during which time their evil courses have been numerous and long continued. As those who are affected by their doctrines are not able at once to appreciate the worthlessness of them, when they are duly appreciated they are regarded in the same light as the teachings of Buddhists and Taouists are at the present day. But (Christianity) has nothing in common with the doctrine of the holy sages with regard to the inculcation of virtue. Yet to manifest the greatness[9] of the universe where everything exists, it (Christianity) is allowed to be preserved[10] (in Macao) where it will not be spoken of.[11]

These men (Roman Catholic Missionaries), who act criminally towards $\frac{\text{T'ien}\ 12}{\text{Heaven}}$ and corrupt men's minds and morals, not having as yet spread over the whole Empire, and I being well aware of their evil mindedness, I have, after mature deliberation, determined that unless I publish their wickedness I shall not be discouraging the disposition (that exists) to associate with them; and that unless I unveil their intentions I shall not be able to destroy their $\frac{\text{rashness}}{\text{arrogance}}$ in evil doing.

Their doctrine teaches that T'ien chu has attained the Lordship of and rules over all things—wind, rain, dew, thunder, the female and male principles, cold and heat. One cannot tell whether they mean to assert that before the existence of T'ien chu, there was no female or male principle, no cold, heat, wind, rain and dew; or whether there was then another Lord who ruled over them, and that T'ien chu succeeding him obtained his powers. This is the first error.

Again the converts have first to give up to be burned the tablets of their ancestors and parents, in order to manifest the sincerity of their conversion. Now as T'ien chu must either have been produced from nothing or have been born from ancestors and parents, even if T'ien chu were produced from $\frac{\text{space}}{\text{nothing}}$ $\frac{}{\text{void}}$ he has no right to force men to burn and destroy the source of the (family) spring and the root of the (ancestral) tree.

Again men in their veneration like to present an offering to Heaven, but, since heaven created man and the universe, it was he who created my parents and ancestors; then what pleasure can the burning (the memory of parents and ancestors) afford to

Heaven the creator of man and the universe. This is the second error.

Those who destroy the records of their parents and ancestors wish by so doing to demonstrate their reverence for T'ien chu. But I have heard that foreigners in their customs also have an Emperor and his Ministers. They have elder and younger brothers and friends, nor do they wipe out the memory of their generations;[13] why do not they thoroughly annihilate these ties to do the will of T'ien chu and attain a still higher degree of merit? Why only cast off parents and ancestors like worn out shoes? This is the third error.

The foreigner's teach, that in science and art it is necessary to put forth one's utmost mental strength to acquire such a state of perfection that one may be satisfied to stand still; that the space of a man's life is not sufficient to enable him to complete half this labour, which he must hand over, in the stage to which he has advanced it, to his sons; and that these who receive the work in this incomplete condition must use their utmost endeavours to carry out the designs of their parents, which if still unperfected are handed over to the grandchildren to one or several generations, until at last posterity has perfected them. They then are in the condition to be humbly received. (They also teach) that those who have attained this degree of knowledge are the fit propagators of religion, and that the (Missionaries) who come to China are of this class.[14] To this it may be objected that art and science are in no way connected with the daily moral exigencies of human beings, but on the contrary when carried to excess lead to monstrous arts and lewd craft, which are things not permitted by law. Again as these persons do not recognize their duties to their parents and ancestors, of course the parents and ancestors do not acknowledge their children. In fact they teach that the only motive that makes the parent acknowledge his offspring is the hope of perfecting monstrous arts and lewd craft, and the only tie the son acknowledges with his father is by his having bequeathed to him designs, the construction of which he has to complete. This is the fourth error.

Again they teach that having attained perfection a man should go forth to establish his religion; disseminate his doctrine, annihilating the memory of ancestors and parents for the benefit of men with whom he has nothing in common; and, neglecting his own kin, sacrifice the talent and labour of several centuries

in order to profit the requirements of other people. This is the fifth error.

From the above it is manifest that the (Christian religion) is one which tends to corrupt men's minds and morals, yet, were the evil confined to the converts, the crime (of the Missionaries) would be but small. But the truth is that the dangerous nature of their (secret) intentions is so great that it is unquestionable.[15] Portugal (Europe) is several thousands of myriads of *li* distant from China, a whole year does not suffice for the journey; then there are the dangers of the sea, the wind and the waves to be encountered, the separation from the (native) villages, (home), the leaving of wives and children and the fatigues of travel. If we judge from human nature we must come to the conclusion that all this is undertaken for the sake of profit.

The (foreigners) who bring their native products for the manufacture of implements cheat the Chinese out of incalculable sums of money; on the other hand one hears that those who enter the faith have money given them for so doing, but then the number (of converts to whom presents are to be given) is fixed, as is also the time (during which these presents are to be made). I do not think the foreigners are so stupid as to take an infinity of trouble and mental labour merely to get the wealth of the Chinese, in order that they may give it up for the benefit of the people in China. Some say that every year foreign[16] vessels arrive fully laden with the silver of their country for the purpose of supporting persons to propagate their faith in China, and that this money is contributed by persons dwelling in those countries for the purpose of furthering the work, and not with the object of profit. These Missionaries not only teach the doctrine of T'ien chu but also the art of making gold; thus their object is both to improve men's dispositions and to instruct those now ignorant of the means of attaining wealth. This only shews the dangerous tendency of their secret intentions.[17]

Some people say that the object is simply the desire of propagating their faith and attaining fame; and that in truth there have been men who have sacrificed their lives for philanthropical motives. In answer to this it may be said, you may perhaps find *one* who has so great a regard for fame, but it is incredible that the whole population of a nation should be so devoted to fame, that they should either give up their property and assist (in works of philanthropy), or come in crowds, like those

who reside in their churches, and be every where spread. That those desirous of fame should be so numerous is impossible. Alas in all probability they do this (the Missionary work) because they have some (sinister) object. One has only to regard their intrigues in Kao urh pa (perhaps Java) their tricks in the Philippines, and the unveiling of their cunning in Japan to be convinced, that in teaching their religion they do not confine themselves to propagating their faith, and that (they only use their religion, as they know) that among ignorant men and women are none whose emotions are not stirred by the idea of (future) misery and happiness.

At present in Japan at the straits where the port is situated they have made a copper image of T'ien chu, and those who go to that country without trampling on the image of T'ien chu are deemed guilty of unpardonable crime. If then T'ien chu receives such an insult and degradation as being trampled on, at the hands of a petty foreign state, and has no means of (avenging it); it is evident that it is because he has no power over human happiness and misery.[18]

Even if one discusses the implements which they (are said to have) brought to perfection, the Hsien chi[19] and Yŭ hêng $\frac{\text{(Revolving spheres}}{\text{and Jade tube)}}$; these existed in the time of the Tang[20] and Yew dynasties. As for their Sundial and Compass, Duke Chow[21] had them in his time: with regard to the self striking clocks and water time-piece, they already existed in the time of the Han dynasty: and as to their astute contrivances for startling people such as the wooden ox and automaton horse, why Chu ko[22] Marquis of Wu in the time of the five dynasties had them made by spirit workmanship. The tradition of them has been handed down to the present times.

As the Missionaries teaching is untrue; as their instruments have been invented by Chinese; and as their science cannot affect the $\frac{\text{(future?)}}{\text{the happiness}}$ or misery of mankind, I cannot make out how it is that any one has been duped by their discourse.

The sacred ancestor, canonized under the name of the benevolent Emperor, bestowed two hundred Taels of silver on the foreigners resident at Hang chow. Now this was only an acknowledgement of the fact that they had come from a distance, and a mark of compassion. But these people went and set up a temple in the north east corner of the Provincial city, and put up

a tablet on which were the words "Built by Imperial Order." To justify them in doing this they ought to have received an Imperial Edict specially commanding the building; all that they did receive was a gratuity of money, and they then falsely arrogated the reputation of the exertion having been made by Imperial Order. Now there are numerous officers, both in the capital and the provinces, who have received gratuities of public money; these men can (if they like) put up a board on which is written "bestowed residence," but the fabrication of the jade decree[23] is a crime of the greatest enormity, a crime with which other crimes are not to be compared.

Let us do away with $\frac{\text{that which}}{\text{those who}\ (\text{the Church which})}$ spread these disorderly and unenlightened ideas, and present a temple to a being who has a beneficial influence over humanity. Let the fabricated reputation of the church having been built by Imperial Order be destroyed, and let the building be presented to One, who though she appears by right in the (sacred) records has not as yet a temple devoted to her.

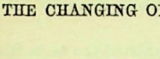
The name, surname and generation of the spirit T'ien hao are written in the books, and though implicit belief cannot be placed in these, yet there are traditions which have been handed down by various Emperors of our dynasties; and even foreign nations have shewn their respect for her by the frequency of their offerings and by the numbers that have attended festivals in her honour. Owing to her protection fishers and traders have travelled over the ocean billows and stormy surf with a fixed day for going and returning, as safely as if they were navigating the rivers creeks and bays. And the spirit of T'ien hao has watched over them. Yea her spirit all pervading has been a beneficial influence working vastly for humanity.

Then let us do away with false doctrine and $\frac{\text{show our gratitude}}{\text{reward merit}}$ by re-establishing the memory of virtue. Let us change the abode (of the Christian religion) into a temple. Let us destroy their execrable idols and images in order to make proper ones, that hereafter the eyes of the Hang chow people may no longer see the abode of T'ien chu and that their ears may no longer hear the name of T'ien chu. Then the abominable acts which the Missionaries have practised for 200 years will no longer give them a field for intrigue. Heretical doctrine and corrupt speaking will then in course of time be done away with—and there will be the great and lasting result—preservation of morals.

Given this———day 9th moon of the 8th year of Yung cheng, (Oct. 1730) 47th year of Cycle, by Li wei (Titular) Guardian to the heir apparent, (Titular) Chief Secretary of State for the War Office, Assistant Inspector General of the Censorate, Viceroy of the Che kiang Provinces, Commander of the Forces, and Provincial Chancellor of the Exchequer, Governor General and Salt Commissioner, (Titular) Head of the police for the seven *foo* and five *chow* in Kiang nan, viz., Chiang ning foo, Soo chow foo, Sung chiang foo, Chang chow foo, Chêu chiang foo, Huei an foo and Yang chow foo—Chang chow, Hai chow, Pi chow, T'ung chow and Chu chow, Six times honourably mentioned, Once recorded for promotion, and Once for distinguished military services retained in office though in mourning.[24]

Observations.

1. Another common definition of 理 li law is 天理通和 T'ien li t'ung ho, Universal Harmony is heaven's law.

2. Tai chi 大極 generally translated Final cause is represented by the following symbols  1st stage 2nd stage Chaos is 混元 Hun yuan and is represented by the following symbol  It is on account of the symbols that I have translated Tai chi by the "motive influence from which out of Chaos", as it is the curved line in the first figure which represents the Tai chi. In the second figure the light part represents heaven or the Yang (male) principle and the dark part earth or the Yin (female principle.)

3. 蒼蒼天 Ts'ang Ts'ang T'ien is a very common Chinese oath; the 天 I had always imagined to be an ellipsis for T'ien yè 天爺, when the meaning of the oath would be, Oh Lord of the deep blue heaven or firmament. It would not have suited the purpose for which this tablet was erected to give this rendering, as here the personality of T'ien is denied, hence the rather awkward explanation in the context.

4. Here a character is broken off the tablet. I do not know whether it was 下 hea below 上 shang above or 裡 li inside.

5. This is somewhat what Confucius says. I quote from memory. "Let "the man who will be perfect attentively consider the causes and the effects "of every action, let him do this with an earnest diligence to a hair breath, "forgetting and leaving out nothing; then after a long time shall he have "attained knowledge and be a fit ruler of hundreds." This and the context would seem to denote that the Chinese had an idea of the utility theory in ethics, or stated syllogistically,

Experience shews what is harmful and what is useful.

What is harmful is bad.

What is useful is good.

Experience then is the text of what is good and evil and forms the standard thereof.

Experience is gained from one's own consciousness.

Therefore the standard of good and evil comes (from within) from ones own consciousness, and not from the commands of a Deity which is without.

6. Of the wild men of Chi tung the San kwo chi says, 齊東絕倒之語偏足煽惑愚人如蒼天已死黃天當立是已 The delusive doctrines of Chi tung were sufficient to lead astray and excite foolish men, such as "the azure heaven is dead and the Yellow heaven is already established."

7. Can this be an allusion to the passage in the psalms?

8. Before ever Matteo Ricci ever came to China existed the term Shang ti 上帝 Upper ruler, which is the term adopted by the Protestant Missionaries for God. Except that Shang ti has a body. I should imagine that the term would express to the mind of the Chinese much the same idea as the early Christian idea of God. The early Christians believed in the personal existence of the nether deities, whom they considered dæmons; and the Chinese in the same manner believe in the existence of a being who is the Christian's God, but object to the precedence given him over their own Gods, and the assumption of the title T'ien chu Lord of Heaven.

9. The greatness of the universe here used much as an Arab says, *allai akbar*, God is Great. That so extraordinary a thing should be.

10. 存 Tsun. Christianity is not to be exterminated in spite of its faults; in order to vindicate the greatness and variety of the universe it is to be as the Kwai's monstrosities—to exist but not be spoken of, so it is to exist at Macao instead of being altogether expelled the Empire.

11. 不論 Pu lun. There were four things which Confucius never spoke of 怪力亂神 Monstrosities, Physical force, Horrible crimes, and Deities.

12. Act criminally to (Heaven) T'ien by setting up as a rival the Lord of Heaven.

13. Alludes, I presume, to the monks calling each other brethren.

14. It would seem that the writer of the tablet confounded the religions with the scientific teaching, and thought that the latter was part of the Christian Faith.

15. The secondary importance given to Parents in the scriptures in such sentences as he that "Loveth his father or mother more than me is not "worthy of me," and "A man shall forsake his father and mother and "cleave to his wife" must seem very immoral to the Chinese who make filial piety the keystone of all goodness.

16. 紅毛 Lit. Red haired, a common word for foreign.

17. On the principle I suppose of *omne ignotum pro horribili* the tablet never states what the secret intentions of the Missionaries are.

18. This last argument is this "Dont serve the Christian God as he cannot do anything for you," and reminds one of how much the principle of not serving God for nothing is implanted in half civilized minds, and of the rather naive address of Licinius to his soldiers when he was going in to battle with Constantine.

19. 瘞璣 The Hsien chi I have seen, it is a great number of hollow spheres which revolve one within another in every direction, on the same

principle that school room globes revolve; on the outside Globe of the Hsien chi were depicted various constellations, some of which were recognizable, on the inside globes were represented rivers, seas and mountains.

玉衡 Yŭ hêng, I do not know what the Yŭ hêng is.

20. 唐 Tang 虞 Yew better known as 堯 Yao and 舜 Shun. Emperors who are highly praised by the Chinese classics. They are said to have been the fourth and fifth rulers after the commencement of the world.

21. Duke Chow a minister in the Chow dynasty who invented the Abacus.

22. Chu ko. Liang called K'ung ming lived in the time of the three Kingdoms he was the Tutor of LIU PEI.

23. Jade decree, no one but the Emperor is allowed to use a jade seal.

24. A mandarin is required to retire from office, for the space of three years, after the death of a parent.

天主堂改爲天后宮碑記

古昔聖人之言天者理與數二者而已大極生兩儀五氣順布四時行焉此言理也日月星辰纏度次舍此言數也至于蒼蒼者則積氣爲之地之上卽天一言盡之矣易曰雲行雨施品物流形言天之功用如此其盛非謂天之復有施行此雲雨者書曰天視自我民視天聽自我民聽言天無視聽就羣黎百姓而寄此善惡是非之理非謂天之上眞有具耳目之質而司此視聽者雖齊東之野人鄒衍蒙莊之悍誕不經亦未有指天所生之人以爲能踞乎天之上捺之縱之于清虛廣漠之中使天亦退處于無權而爲之主者自明季萬曆年間大西洋利瑪竇入中國造爲天主之名而其教遂蔓延於愚夫愚婦之口其徒之入中國者遂大興土木營建居室于通都大國之中我

朝定鼎以來

聖祖仁皇帝念其人生長海外遠來就化雖爲說不經然皆具心思知識未必不可教道居之

京師使沐浴

聖朝德化之盛久而幡然改悟歸以教其國中之人咸知天經地義之正此乾坤覆載之

深恩不遺一物之義也豈知荒誕狂悖之見固結而不可解我

皇上御極之初洞燭其奸黜其人皆歸南澳不得盤居內地而直省之所爲天主堂者將以次而改矣顧其制皆崇隆巍煥非編戶之所可居宏之又日就傾圮去荒誕狂悖之教而移以奉有功德于蒼生之明神不勞力而功成不煩費而事集此余今日改武林天主堂爲天后宮之舉也雖然自利瑪竇之入中國迄今幾二百年浸淫沉溺惑其教者未必一旦有豁然之悟卽悟矣視如今日二氏之說雖無當于聖賢道德之旨不妨存而不論以見天地之大無所不有此其得罪于天而爲害於人心風俗者卒未大白于天下也余旣深知而熟悉焉不申其罪無以服附和之心不誅其心無以破奸詭之胆教稱天主是風雨露雷陰陽寒暑彼皆得而主持之也不知未有天主之前將竟無有陰陽寒暑風雨露雷乎抑別有主持之者俟天主出而授之柄乎此其謬一也入其教者必先將本人祖宗父母神牌逐與燬棄以示歸教之誠不知天主生于空桑乎抑亦由祖宗父母而生也彼縱生于空桑亦不得率天下之人而盡棄其水源木本之誼況人之所以敬天奉天者以天實能生人生物耳今以生我之父母祖宗而棄絕之不知倘何取于生人生物之天而敬之奉之此其謬二也棄絕父母祖宗者欲專其敬于天主也然聞西洋之俗亦有君臣有兄弟朋友且生生而不絕則何不盡舉而廢之而所以事天主者尤專且篤而獨父母祖宗棄若敝屣此其謬三也西洋之教一技一能務窮思力索精其藝而後止設所得止及于半而年不我與則舉而授之其子其子卽就所受之半而接續以繼其思猶有未達則復舉其所得而授諸其孫或一傳或三四傳其藝始精則翕然推而奉之以爲此可以行教之人矣今之入中國者悉此類也夫一技一能原無當于生人日用之重至于奇技淫巧尤爲王法之所不容今旣不知有祖宗父母則爲其祖宗父母者當亦不復以子孫視之獨至奇技淫巧之事父忽念其爲子而不啻冀翼之授子忽念其爲父而不啻堂構之承此其謬四也藝旣精矣遂可出而設教行道矣夫旣祖宗父母之盡棄其他漠不相識之人復何關痛癢而必窮數世之精力以利他人之用此其謬五也然此雖足爲人心風俗之害弊止及于惑其教之人其罪猶小至其居心之險則尤有大不可問者西洋去中國數千萬里而遙非經歲不得達又有大海風濤之險去故鄉離妻子跋涉而來以人情論必有所利而爲之携帶土物造作器用誑中國之金錢誠不可數計然吾聞入其教者必有所資給人有定數歲有定額勞心焦思取中國之財仍給之中國地方之人圖利者恐不若是之拙也或云每年紅毛船到必廣載其國中之銀錢以濟此在中國行教之人或又云彼來中國者皆善黃白之術以彼國之金而用之中國且以此數人之行教而國中居守之人肯傾其貲以佐之用所圖者非利也彼旣以天主之教教人而復借黃白之術以收拾人心則以幻術愚人以貨財結人其所設心殆有在矣或又爲之說曰彼其志欲行教耳好名之人能謀千乘之國何難去故鄉離妻子蹈不測之大海以博後世之名夫好名之人誠有捨其身以徇人者然一人好名何爲而國中之人亦皆好名而傾貲以佐之也且絡繹而來其居天主堂者所在而有是何好名者之多也嗚呼此蓋非無所爲而爲之者一見其技于噶爾巴矣再見其技于呂宋矣又幾肆其技于日本矣爲行教計耶抑不止爲行教計耶愚夫愚婦未有不以禍福動其心者今日本于海口收港登陸之處鑄銅爲天主跪像抵其國若不蹈天主像則罪至不赦既爲天之主而受海外一小國如此蹂躪毀褻卒亦無可如何其不能禍福人卽矣所精者儀器璿璣玉衡見之唐虞矣所重者日表指南車周公曾爲之矣所奇者自鳴鍾銅壺滴漏漢時蚤有矣所駭人者機巧木牛流馬諸葛武侯行之鬼工之奇五代時有之至今猶有傳流之者其說不經其所製造亦中國之所素有其爲術又不能禍福人吾不知何爲而人之惑其說也西洋人之居武林者

聖祖仁皇帝曾有白金二百兩之賜此不過念其遠來而撫恤之彼遂建堂於省城之東北隅顏其額曰勅建夫曰勅建必奉

特旨建造而後可今以曾受賜金遂冒竊勅建之名內外臣工受

國家白金之賜者多矣以之築室遂可稱爲賜第乎干國憲而冒王章至矣盡矣他復何可勝道耶誣罔不經者宜去則有功德于人者宜祠也冒竊勅建之名者宜毀則列在祀典向無專建之廟宇者宜增也

天后之神姓氏顛末見之于書者雖亦未可盡信然我朝

歷聖相傳海外諸國獻琛受朔者重譯而至魚鹽商賈出入驚濤駭浪之中計日而去旋期而還如行江河港又之間而

天后之神實司其任神之靈應呼吸可通德功之及民何其盛哉荒誕不經者去而崇德報功之典興毀其居室之逸制者改爲廟貌徵其像塑之詭秘者設以莊嚴夫而後武林之人目不見天主之居耳不聞天主之名二百年來深沉詭秘之術將無所施其技異端邪說久且漸熄其有關于風化豈淺鮮哉

時

雍正八年歲次庚戌九月 日

太子少保兵部尚書兼都察院右副都御史總督浙江等處地方軍務兼理糧餉管巡撫鹽政節制江南江蘇松常鎮淮揚七府太倉海邳通徐五州督捕事務加六級紀錄一次又軍功紀錄一次在任守制李衛題

* See Note 4.

ARTICLE III.

NOTES ON THE NORTH OF CHINA, ITS PRODUCTIONS AND COMMUNICATIONS.

By Rev. A. WILLIAMSON, Chefoo.*

In the course of duty having been engaged, less or more, for three years in travelling over the north-eastern provinces of China, it appears only right that I should give some account of these districts so rarely visited by Europeans, especially in view of the urgent demand from all quarters for trustworthy informa- from the interior of the Empire. And I am the more disposed to do so at present in as much as I have just completed a long journey of 1750 miles going and returning in company with my friend Mr. Lees of Tien-tsin, through the provinces of Chili, Shan-si, Shen-si and part of Honan, and have observed several things of some importance relating to the resources of the country, the river and road communication, and the internal state of this quarter of China.

Coal.—At different times and through diverse channels information has reached foreigners residing on the coast, of coal in the neighbourhood of Pekin, and on the east coast of Manchuria. Not long after the war, Lieut. Howarth, then commanding H. M.'s gunboat *Weazel*, and Mr. Brown, of the Legation at Pekin, were deputed to examine the coal-fields near the capital. They visited two districts—one lying on the north and the other on the west —and gave us a very favourable report. They affirmed that there was coal of a very fair quality, and apparently unlimited quantity; that one of the districts had water communication all the way to the sea and the other two-thirds of the way; and that coal could be laid down at Taku at a very moderate price. A writer in the *Quarterly Review* for April, 1866, page 444, says, "We may state that, having examined coal, including lignite,

*Read before the Society 13th March and 18th April, 1867.

from nearly every part of the world, we have seen no steam coal superior to that from the neighbourhood of Pekin, where it is reported that a magnificent coal-field exists, not less than three hundred miles in extent. This report is founded on a personal communication from a geologist who has spent three years in the exploration of that coal-field." The geologist referred to is, I presume, Mr. Pompelli, who explored the coal-field near Hankow, and that in the north and west of Chi-li, and went overland through Siberia to Europe, and has lately published an account of his researches. But be this as it may, the manifest attainments of the writer of that article, and the character of the periodical, are a sufficient guarantee for the veracity of the statement, and hence it may appear an impertinence on my part to add one word more in reference to that field. But as two witnesses are better than one—no matter how intelligent and trustworthy the former may be—and as I have recently visited districts from which I believe Mr. Pompelli had only reports, a few remarks from me may not be deemed superfluous before proceeding to other matters.

In the autumn of 1863, travelling from Dolonor in Mongolia, I came upon coal at Kalgan, and found it at almost every place from that frontier town on to Pekin. The coal came for the most part from a fine hill called Ki-ming-shan, lat. 40 deg. 28 min. N., long. 115 deg. 20 min. E. I spent a day in the neighbourhood of the place and made some enquiries regarding the matter, and found the coal good, and plentiful, and cheap.

In the spring of the year 1866, journeying from Newchwang in Manchuria, I met coal at King-chow, lat. 41 deg. 9 min. N., long. 121 deg. 21 min. E., and also found it in common use, at almost every place between that city and the capital. The coal in this quarter came from several places. Some came from near King-chow, some came from the neighbourhood of the palisades, about 40 deg. 45 min. N., long. 120 deg. E.; and some came from Chang-li, lat. 39 deg. 48 min. N., and long. 119 deg. 12 min. E. I know not from what points Mr. Pompelli took his estimates, but if the reader will look at the map, he will find that from Kingchow to Ki-ming-shan there are more than five and a-half degrees of longitude, which shews that his statement is correct. I brought some specimens of the coal of these eastern parts home with me, some of which were pronounced most excellent coal.

In this connection I may also mention that capital coal is found in Manchuria, 18 miles east from Liau-yang, lat. 41 deg. 18 min. N., long. 123 deg. 13 min. E.; at Foochow on the coast quite close to the sea, lat. 39 deg. 42 min. N., long. 121 deg. 33 min. E., which coal is carried by junks to Shan-tung and distributed all over the eastern part of the province; also that coal is found at Poissiet; and here and there all up the sea-board of Manchuria under Russian protection, and that very fine coal is likewise to be had in the Island of Sagalien, from which the Russians supply their steamers.

Coal in Shan-si.—There is yet a still finer field of coal in the north of China—mentioned in old Jesuit books, but apparently quite forgotten in modern times; as I have never heard any reference to it in my intercourse with foreigners, nor seen any allusion to it in published reports: and it is this and the iron found there which chiefly induces me to write at present. I refer to Shan-si. I made a journey through that province and part of Shan-si and Honan last autumn; and though prepared from native sources to find coal there, I certainly did not expect to find it in such abundance and of such magnificent quality. As we approached this province, the first indication we met was pack-horses, mules, and asses innumerable, no end of them, laden with coal and iron coming eastward towards Chi-li. By-and-bye we came upon inferior coal cropping out on the waysides, and at last got into the very heart of the coal country. This district may be said to begin at Tsing-king-hien, and to continue to Sey-lieh, a village 12 miles east of Tai-yuen-foo.

At this city, viz: Tai-yuen-foo, another coal district may be said to begin, which reaches on to Ta-foong-foo in the north of the province, yielding beautiful coal.

A third coal district lies in long. 110 deg. 45 min. and between lat. 36 deg. 50 min. and lat. 37 deg. 30 min. N.

Another coal district may be said to lie towards the west in the neighbourhood of Tai-ping-hien, lat. 35 deg. 52 min. N., and yet another in Shensi, contiguous to the north-west of Shan-si, within that great bend of the Yellow River, in lat. 37 deg. 50 min. N., long. 110 deg. E., near the city of Mi-tze-hien. Here, moreover, we are told petroleum is in common use among the people. *Thus coal is found nearly all over Shan-si, whose area is* 55,268 *square miles.*

To shew how plentiful it is, I may mention that travelling through mountain-passes towards Tai-yuen-foo, at almost every road falling into the Imperial highway from the north, we found donkeys laden with coal, and also on our way through the Tai-yuen plain, going southwards, on the right hand and on the left we found coal pouring in, shewing that it literally abounded. One district in particular struck us, namely, that in lat. 36 deg. 50 min. to 37 deg. 30 min. N., long., 111 deg. 45 min. E. Leaving Chee-shui-hien a few miles brought us into a fine country watered by the river Fuen, which extends for 130 *li*, or 38 English miles, and appears to be full of this mineral. At first on the western side we saw pit after pit, collier villages, and all the accessories of coal mining on the hill sides; and having proceeded onwards a little we found them also at the eastern side, on which our road lay, and passed them at greater or lesser intervals till we came to Ling-sz-hien. Three miles beyond this we had to cross the famous Han-sing-ling Pass, and from the top of the mountains we could descry coal cropping out on the hillsides all around, just as if courting the hand of man to come and take it. This place was particularly interesting—a very paradise for geologists. Like another valley near Ping-ding-chow, there was a great variety of coloured earths exposed to view, and as many of the hills were cut through almost perpendicularly, and the strata beautifully distinct, the various colours in the sunlight reflected all the hues of the rainbow.

Of course we could not visit all the coal mines in the different districts, but we constantly enquired of the muleteers where their coal came from? the price of it? whether it was plentiful? &c., and generally got a sample of it from them to carry home. And also when resting in the inns we made it a duty to examine the nature of the coal used for cooking and other purposes, and to ascertain all the particulars regarding it.

We visited several of the pits in the neighbourhood of Ping-ding-chow, and also in the third district referred to.

As I said, I shall not enter into any details, but sum up.

Throughout Shan-si we found two distinct kinds of coal—one of a dullish black colour, rough and emitting smoke, good bituminous coal; the other of a clear, shining black, light, easily igniting, but emitting no smoke and leaving no ashes. It is not coke, but a natural product, they called this coal *charcoal;* many of the pits are *ingoees* entering the hills horizontally at a greater

or lesser incline, but a large proportion are vertical pits substantially faced with stone and wrought by strong windlasses; some of the former were said to be one *li* or one third of an English mile in length, and the latter sometimes as many as 200 feet deep.

Generally speaking, the seams of coal appeared to be of a great thickness all over the country. The blocks piled up at the mouths of the pits, the great pieces on the backs of the mules, in many cases three pieces serving for a full load, and two pieces for a donkey—and the huge lumps which we often met in the plain, on the carts, which it would take two men to lift, are the best proofs we could have of this. At one of the pits we visited we were told that the seam was from three to four feet thick, and this we believe to be about the average. We made enquiries as to fire damp; they said it was unknown in the midland districts, but there was fire in some of the pits in the north; that the great enemy they had to contend with was water, for having dug in a certain length or down a certain depth, water came up and stopped all operations, and they had to open a new mine in another locality.

But perhaps the most conclusive proof of the abundance and easy accessibility of the coal in the price. This, of course, is varied in proportion to the distance from the mines, but at the pit's mouth we found the price in all the districts ranging from 50 to 70 cash *per picul*, or 2*d* to 3*d* per cwt. for the best coal. In view of their rude way of working, this speaks volumes. In addition to the black coal just described we found abundance of brown coal both in Chili and Shan-si. This coal they burn with the black, especially with the kind called coal-charcoal; this latter prevents it burning away too rapidly and retains heat after the former is all consumed. Several varieties are found, some of a light brown, and others of a reddish brown, and it in many places costs nothing but the carriage. There are great quantities of this in the district of Ping-ding-chow, and also at Ling-sz-hien.

Whether it be of any great use must be determined by practical men.

Iron in Shan-si.—Not only have we coal in Shan-si, but abundance of iron, a fact likewise apparently quite unknown to Europe. This mineral is found in many places throughout the province, but there are four districts especially famed for it. The first is the district of Ping-ding-chow, formerly referred to above

that he ordered it to be placed in its present position and called the name of the city "Ling-sz-hien, or the Spiritual Stone City," in honour of it. It may be meteoric in its origin, though we think this improbable; we are far more inclined to believe, in view of the highly metalliferous nature of the district, that it is only a portion of some fine vein of almost pure metal, such as is to be found at Canaan in Connecticut, or part of an iron hill such as is in Missouri.

Much of the iron produced in this province appears to be of a very superior quality. The bars of welded iron have that blue shade indicative of strength and toughness. They are fine in their grain, and when struck ring like bells. I brought specimens home with me of the iron of the different districts; several merchants and others acquainted with metal pronounce the quality excellent. A friend took possession of them, and specimens of other minerals, and sent them to the Paris exhibition.

M. Giquel, of the Imperial Customs, in his report on the Trade at Shanghai for 1865, says of iron:—"Some is to be had of excellent quality, indeed, a certain kind coming from Tien-tsin (Pe-chi-li), and Wan-chow (Che-kiang), do not yield in any respect to the best Swedish iron; and we know that a sample which was sent to Leeds some time ago was returned to China in the shape of a vice perfectly polished, and upon which could be easily discerned the fine fibres of the metal, which was declared to be equal to No. 2 Swedish iron." There can be little doubt this sample from Tien-tsin was Shan-si iron; for there is no iron produced near that city, but it derives nearly all its supplies from this province.

The price of iron in Shan-si greatly depends upon the distance from the mines, as mule hire is so expensive; but the best Loo-ngan-foo wrought-iron bars can be purchased at that city for about 2,800 cash per picul, or little over Tls. 2; in English rates about 12*s.* per cwt. This tells its own tale.

But the production of iron in the northern provinces is not confined to Shan-si; we have it in several places in Chi-li, though not so abundant. It is said to be found at Chang-li-hien, lat. 39 deg. 50 min. N., long. 119 deg. 20 min. E.; at Man-lan-a-jim, lat. 40 deg. 20 min. N., long. 117 deg. 30 min. E., and at other places. I have met it outside the Great Wall coming from the neighbourhood of the Hi-fung Pass.

as producing coal, in which are the cities of Yu-hien, lat. 38 deg. 12 min., long. 113 deg. 15 min., and Lo-ping, lat. 37 deg. 39 min., long. 113 deg. 45 min., where iron-ore mines abound. The next is the neighbourhood of Tai-yuen-foo. Here outside the east gate and at the hills 13 miles to the N. W. are iron manufactories. Towards the west of the province in the district of Tai-ping-hien, lat. 35 deg. 52 min., are also great quantities of iron.

But the most famed district is that of Loo-ngan-foo, lat. 36 deg. 7 min. N. The mines here produce the iron of which the Chinese make their razors, knives and cutlery: this iron is in request all over the country, and it appears to be as plentiful as it is famous, perhaps its fame is the cause of its abundance, inducing the natives to mine it to a greater extent. An intelligent blacksmith whom we questioned on this point said that at Tai-ping-hien and Yu-hien there was a good deal produced, but not to be compared to Loo-ngan-foo; that at this city you could always get as much as you wished, that it was "*to to li hai,*" literally in "frightful lots." But besides these districts and others mentioned in Chinese books I am persuaded that iron exists in many quarters not yet known to the Chinese, or, if known, not deemed by them worth working, owing to the abundance and cheapness of that already in the market. We found iron-ore in several places other than where it is manufactured. Leaving Ping-ding-chow, and passing toward Tai-yuen-foo, we found black iron-ore in the bed of the mountain-torrent. Travelling southward toward Ling-sz-hien we found iron-ore among the stuff at a chemical work on the way-side, and large lumps of rock full of sulphur, &c. And yet more important, as we entered the city of Ling-sz-hien from the east, we passed a walled enclosure provided with a gateway, marking the place as of some notoriety. We entered, and there we found a stone standing perpendicularly, carefully set in a substantial socket, having a vase for incense before it and a temple behind it. It was about 5 feet high, 3 feet wide, and 18 inches or so thick in the centre. To our surprise we found it to be a huge block of iron-ore, in fact, nearly pure iron. We examined it most carefully, we struck it with several articles, and it rung out like bell metal. The tablet at the side of it said it was found by the Emperor Sui-kai, in the 10th year of his reign, in the bed of the river Fun, which flows through the valley; that it was deemed such a curiosity by the great Emperor Kang-hi

There are also iron mines in Manchuria in juxtaposition with the coal mines already referred to, 18 miles to the east of Liau-yang, lat. 41 deg. 18 min. N., long. 123 deg. 13 min. E. They supply all that district with iron utensils and are famous all over the country.

Gold.—This is found in several places in the north of China, Manchuria and Mongolia. Before the rebellion in Shen-si it was obtained from the sand of the rivers and streams of that province, especially in the neighbourhood of Lan-chow. The Jesuit fathers tell us that an infinite number of persons made their livelihood by searching the sands of these rivers. Gold is also procured in considerable quantity in Mongolia and in the centre and on the sea-board of Manchuria. We have seen a sample of several ounces from the neighbourhood of Poissiet which very much resembled Australian gold.

Silver.—We have been asked where does all the silver come from which is shipped in such quantities from Tien-tsin. We have not been able to arrive at a definite solution of the problem. Doubtless a large portion of it is due to the commerce and Government of the country, but there must be important silver mines some-where in the north. A passing traveller can see coal and iron, and such bulky and cheap minerals, but it is some-what difficult to discover the locality of the precious metals. We have little doubt but that there is plenty in Shan-si, but while there we could only hear of one place about 60 miles north of Tai-yuen-foo which produced silver.

We believe that large quantities are being found just now by the Russians in the Altai mountains.

Tin.—This metal is said to be found in the country of the Karchin tribes in Mongolia.

Lime.—Several varieties of most excellent limestone abound all over Shan-si, as well as though less plentifully in the other provinces.

Earths and Clays.—In the province of Shan-si near Ping-ding-chow we found the people manufacturing porcelain and crock-eryware of several descriptions. The porcelain was comparatively coarse, but seemed capable of great improvement. Here also, as well as at Po-shan-hien in Shan-tung, we found them making a species of earthenware of a very strange description. It is very thin and brittle, and looks in colour like a black-leaded pot, but is extremely light. Very little fuel and almost no time serves to

cause it to boil, and hence it is in great demand all over Chi-li, where the poor have to depend upon straw and dried grass for their fires. This ware is also made at Loo-ngan-foo. In the neighbourhood as well as in many other places we found fullers earth and clays in great variety used for all sorts of purposes.

Marble.—In the north of Shan-si we have plenty of fine marble of various colours, and also a variety beautifully veined among the hills on the north-west of Chi-li. As well as in Shan-si, we have white marble in great abundance. We were told of some hills of solid marble.

Building Stones.—Of this commodity in the hilly districts there is literally no end.

Precious Stones.—In reference to these we can only speak from report; but were assured that in Shan-si, and among the hills in the south of Shen-si, precious stones, such as *lapis lazuli*, ruby, &c., &c., abound, and we have every reason to believe the report correct.

Sulphur and Saltpetre.—There is plenty of Sulphur in Shan-si and Saltpetre in Chi-li.

Cotton.—In several districts in the north of China Cotton is grown in considerable quantities, and could be produced much more extensively. In reference to Chi-li it may be said to be raised all over the province under the 39th degree of latitude. In the southern half of Shan-si it abounds; after crossing the Han-sing-ling Pass, lat. 36 deg. 30 min. N., we found it every where. Having crossed the Yellow River at the Toong-kwan, lat. 34 deg. 49 min. N., long. 110 deg. 40 min. E., and having entered Shen-si, we found this important staple growing all over the country on to Si-ngan-foo, the capital of the province; returning homewards through the north-west corner of Ho-nan we travelled through field after field and in many places there was nothing but Cotton as far as the eye could reach.

Nor is it a stranger in Manchuria, far north though this be. Cotton grows on the slopes of the hills to the east of Moukden, lat. 42 deg. 20 min., long. 123 deg. 30 min. E., and even further to the north-east in the direction of Kirin. We also found the farmers sowing it over a considerable area in the neighbourhood of King-chow, lat. 41 deg. 10 min., long. 121 deg. 8 min., and all along that belt of country which lies between the hills and the sea from the above city to Shan-hai-kwan.

In these provinces there are several varieties. In Shansi there are two distinct kinds—one with a reddish tinge and one pure white. We brought samples home with us, and the white Shan-si Cotton was pronounced much finer in colour and longer in the staple than that commonly obtained at Tien-tsin or Chefoo. The natives themselves remarked this—they said "your Cotton in Chi-li is hair; our's is wool."

On our way home from Shen-si and through Ho-nan we met literally tremendous quantities of cotton on its way to Si-ngan-foo, there to be manufactured for the Shen-si and Kan-suh people.

We tried what we could to obtain reliable information regarding the cultivation of this plant, but were not quite satisfied with the results of our enquiries. There was, as might be expected, considerable diversity in the amount of seed sown and the yield. In some places we were told that they used only four lbs. of cotton-seed to a mow which is the sixth of an acre; and in other places from five lbs. up to eight lbs. to the mow. In some places we were also told that the yield was only about 100 lbs. of cotton-tops per mow and from this they obtained 40 lbs. of good cotton-wool and 60 lbs. of seeds, while in other places we were assured that they obtained as many as 300 lbs. to 400 lbs. of cotton-tops per mow in a good year, from which they obtained 30 lbs. of clean cotton and 70 lbs. of seeds in every 100 lbs. of tops.

One thing we are clear about and that is, that the quantity of the yield, and the quality of the wool could be very much improved by greater care in the cultivation. They do not irrigate it, very seldom water it, and sometimes even plant it without manure. In many places the seed is put in after a spring crop has been lifted. I have observed that the seed was in some cases buried in manure before planting.

They use the seeds for oil, and the refuse, they employ as food for cattle. The seeds sell for 30 cash or 40 cash per lb. or from 1½*d.* to 2*d.* per lb.

The soil is possessed, in general, by small proprietors who cultivate from five to twenty acres. They pay a land-rent to the government of 400 to 450 cash per acre, or 20*d.* to 22½*d.* in English money for good ground. Large proprietors who let their land either receive a certain rent, or a certain proportion of the produce according to agreement. The usual wages paid to

farm servants in Chi-li is 15,000 cash per annum or about £3 10*s.* together with their food.

Another means of improving the crop would be the introduction of foreign seed from America or elsewhere. As far as I know this has not been tried in the north of China, but I understand that a small planter in the north-west of Shan-tung, has sent for a quantity to be planted next spring. Let us hope this is only the beginning of better things.

I am not sure but north China may be as a position to return compliment by sending seed which may be of some value to Europe. You will observe that Cotton is grown here in latitudes 40°, 41°, 42°, and 43° north, of a very fair quality: for the Manchurian cotton is all in these districts. I do not know of it being grown in any other part of the world in such high latitudes, and so it is very probable that seed from these places might grow with success in many places in central Europe. Though the staple be short we know it makes most excellent strong cotton, and machinery could easily be adapted to meet that difficulty.

Silk.—This is cultivated in several districts in the north of China; worms are reared in Manchuria on the hills to the north-east of Newchwang, from which the strong Pongee is produced (see Consul Meadow's able report.) They are also reared in the neighbourhood of King-chow, long. 121 deg. 8 min., lat. 41 deg. 10 min. Many of the Shan-tung manufacturers go over to these places and buy the raw silk exposed for sale in the fairs, and take it home to be spun and woven.

Nor are they without the mulberry-tree in these regions. A friend found orchards of them near the large town of Pa-kow, outside the great wall, south-east of Ze-hol.

Wool.—Of wool and camels' hair there is an unlimited supply. If you take a map and look over the north and north-west and north-east you will find the country covered with such uncouth names as these—Tow-mets, Tsa-khars, Kor-chin Cha-lets, Tourbetts, Omi-outs, Kar-chin, &c., &c. These are names of tribes which are nomadic and pastoral. Their flocks of sheep, oxen, horses, and camels are innumerable. They are now inclined to trade with us, and no doubt would be much more desirous were they better acquainted with the advantages of commerce. Here then we have wool *ad libitum*, and camels' hair to any extent that can be desired.

We know that the wool of this sheep is somewhat coarse, but this could be remedied by the introduction of sheep from Europe or Australia. We also know that the camels' hair which has up to this time found its way into the European market has been inferior; but this has resulted from the knavery of the Chinese, who have as yet to be employed as middlemen. Were the European merchant to have access to the producing districts I have no doubt excellent camels' hair could be procured in abundance.

The wool to be had in the west of Shen-si is very superior.

Hemp.—This valuable plant is grown in almost all the places I have visited in this quarter of China. Some of it is very valuable and may come to be an article of export.

China-grass.—This grass which has created some sensation in France, is cultivated all over these provinces, and should it ever come to be of value in the foreign market could be produced in any quantity.

Rice.—There are two kinds of rice grown in these districts. One the "wet soil rice" such as is common in the south. It is reared plentifully near Pau-ting-foo. The other kind is rather peculiar. It is called "dry soil rice." It is sown in spring just like wheat and never irrigated. It abounds all over the country, and the rice is white and wholesome.

Pulse—Is grown every where and used for many purposes. They mould it into cakes called beancakes which form the principal article of export to the south, where it is used as manure for the sugar cane. They also manufacture this species into a bean-curd which is a favourite food, not only in the north but also south of the Yang-tze-kiang. Of the various kinds of millet I need say nothing.

Oats.—This grain is found in the north of Shan-si, in Mongolia, and also in the east of Manchuria.

Vegetables.—Of vegetables there is no end. We have cabbage, turnip, carrot, vegetable marrow, melons, cucumbers, onions, tomato, lettuce, celery, beetroot, spinach, &c., &c., and what will please Europeans best, most excellent mealy potatoes; they are grown in the eastern parts of Shan-tung, in Manchuria, and we also found them to our delight in the northern half of Shan-si. It may interest some to know that we found wild raspberries and strawberries in Shan-si, and also a species of blaeberry on a good sized bush, and not on a low shrub as in Scotland.

Dyes.—We have a variety of good dyes. We have indigo, madder and two kinds of yellow dyes. One produced from the seeds of a tree called the *Whyshoo* very much resembling our common ash. We have also a fine deep red, from the flowers of a pretty annual, and other dyes of less importance.

The shrub which produces the famous *green dye* is found plentifully in the centre of Shan-tung.

Herbs.—Manchuria and the north of Shan-si have long been famous for medicinal herbs. Preeminently among them stands that remarkable tonic Ginsing or jên-seng which is a native of the hills on the east of Manchuria and Corea, and which is not known as it should be.

Curiously enough we have in Shan-tung a shrub, not unlike the privet, from the leaves of which they make tea; which is exported to the south of China and also said to be in great demand in the capital. It forms a very wholesome and not unpleasant drink.

Clover.—Clover is cultivated for fodder both in Chi-li and Shan-si.

The whole of Chi-li, except a small strip on the north and west, the eastern side of Ho-nan, the western part of Shan-tung, and the southern border of Manchuria, all form portions of that great alluvial plain which extends down to *Hang-chow-foo*. The aspect of this portion of China varies immensely with the season of the year. In winter the country is bleak and barren, scoured by cold winds carrying blasts of sand which penetrate everywhere, and the eye is relieved by nothing more picturesque than crowds of graves, and mud villages, and Chinamen hurrying hither and thither with padded clothes, and their hands stuffed up their sleeves. In spring the change is wounderful: the whole country is covered with green fields of wheat, the canals and slow-flowing streams, now relieved of their fetters, are enlivened with innumerable sails, and freedom, joy, and activity everywhere prevail. But in autumn the change is most marked; you can hardly believe it to be the same country; the luxuriant crops, the tall millet far above your head, through which you travel as in a young wood; the sturdy Indian corn, the cotton fields, the endless varieties of vegetables, and the profuse richness of the earth form a contrast almost too much for one's credulity. Yet so it is; the fertility of the soil is extraordinary. The other portions of the north of China are very different. The eastern portion of Shan-

tung, the western side of Ho-nan, the great part of Shan-si, the whole of Shen-si except a plain about the centre, are varied by mountains and valleys, hills and dales, rocks and streams, crystal springs and bounding rivers. This is particularly true of Shan-si. In this province the valleys are far more extensive, and far more fertile, and the hills less bleak than in Ho-nan and Shan-tung. Here they are generally terraced by regular walls up to the very top, and the summits are often crowned by trees; the valleys are full of flowers, among which we met the bluebells, pinks, &c., and a variety of familiar plants, so that it was a perfect enjoyment to travel in this quarter; excepting that the ravines were often so appalling and the road on their edge so perilous that our thoughts were often occupied attending to less pleasant matters. In the north of China we have the extremes of temperature; and the climate is not unhealthy. The best proof of this, though rather a queer evidence, is the old Portuguese and Jesuit grave-yards at Pekin. Here we find from the headstones that the fathers have lived 30 and 40 years in this part, even in the case of some who came to China comparatively late in life; and the next best proof is the excellent health enjoyed by the foreign communities in Pekin, Tien-tsin, New-chwang, and Che-foo, comprising people of all nationalities. There is remarkably little disease among them.

The Great Cities.—In this connection I shall only say a very little in reference to the great cities, and nothing at all about Pekin, Tien-tsin, and Tung-chow, &c., inasmuch as they have been described sufficiently by others; nor shall I refer to any but those visited by me. *Pau-ting-foo*, lat. 38 deg. 58 min., long. 115 deg. 26 min., the capital of Chi-li, next to Pekin in importance in this quarter, is a compact and crowded city, the streets all well laid out, full of good shops filled with valuables of all descriptions, among which we saw a good proportion of book-shops, which speaks well for the literary taste of that district. It has its temples like others, and a bell and drum tower. It is famous for the manufacture of carpets. *Ching-ting-foo*, lat. 38 deg. 14 min., long. 114 deg. 35 min., is a large city, but has only one busy street, running from east to west, and rather disappoints the traveller. It has some extraordinary bronze idols, one about 60 feet and another about 72 feet high, which I shall not attempt to describe in this connection. *Tai-yuen-foo*, lat. 37 deg. 58 min., long. 112 deg. 30 min., the capital of Shan-si, is a

very pleasant city. It stands at the north end of a most fertile valley, and has hills on each side of it at the distance of a few miles. It was formerly the residence of the Princes of the Taming dynasty, and is laid out after the fashion of Pekin. It has its minature public offices and Mae-shan. The streets are regular, wide, and full of good houses. Book-shops are less prominent here than in Pau-ting-foo. There is an Imperial foundry for artillery, match-locks, &c. The trade is comparatively extensive. Many fine quasi-turkey carpets are also made here.

Ping-yang-foo, lat. 36 deg., long. 111 deg. 38 min. This was the first capital of China, the seat of the old Emperor Yaou, who began his reign B.C. 2356. It has continued a most important city ever since, but has suffered greatly from the Tae-ping rebels. It is reviving, though ruins even yet everywhere meet the eye. There are large paper manufactories in the neighbourhood famed all over the country. They are reported to supply Pekin with all the fine paper.

Si-ngan-foo, lat. 34 deg. 26 min., long. 108 deg. 50 min. This city is the capital of Shen-si and stands in a large plain or tableland, with mountains in sight only on the south and north. It was the capital of the Empire for many centuries both before and since the Christian era, and possesses features of intense interest to the Chinese scholar. Although the country all round has been devastated by the recent Mahomedan rebels, this city still stands intact, though shorn of its business and much of its glory. Like the other large cities, its streets are regularly laid out, and were once well paved. They are narrower than those of Tai-yuen-foo, but the shops present evidences of having had even greater trade than in the Shan-si capital. There are several famous temples here: the site of the palace of the Tang dynasty is still to be seen. There is also an extraordinary museum of tablets of many eras, two old pagodas, &c. But the most interesting thing to us was to find the old famous Nestorian tablet, telling of the introduction of Christianity into China in the seventh century, in a ruined temple outside the west gate. It is still perfect, though all around is desolate, and let us hope will continue to be preserved.

Ze-hoh or *Je-hoh*, lat. 41 deg. 4 min., long. 117 deg. 50 min. This is the summer residence of the present Tartar dynasty. Its situation is certainly most beautiful! it lies in the midst of a circle of high hills towering one above another, till ultimately

lost in the clouds. The palace is enclosed by a great wall, and outside are the finest temples I have seen in China. There are immense hunting-grounds in the neighbourhood, where tigers and wild beast abound.

Siuen-wha-foo, lat. 40 deg. 38 min., long. 115. This large city is now occupied in a great measure of trade. It was the summer residence of the Yuen dynasty, and has fine parks full of grand trees on the western side. It is now chiefly famous for the manufacture of excellent felt. They will make a felt hat of any shape in a few minutes.

Kalgan, lat. 40 deg. 54 min., long. 114 deg. 50 min., or *Chang-kia-kow*, as the Chinese call it. This city is one of the frontier towns, through which the commerce of China passes to Mongolia, Central Asia, and Europe, and the chief among them. It is situated at the foot of the great incline which leads up to the Mongolian plateau, is strongly fortified, and commands a great amount of business. The place is famous for the manufacture and export of native soda. It is a double city; the inner being more retired, while the outer is filled from morning to night with troops of Mongols. The Russians have several agencies here, and from this point distribute their imports all over the country.

Dolondo or *Lama Miau*, lat. 42 deg. 40 min., long. 115 deg. 20 min. This city is situated on the plains of Mongolia, in the neighbourhood of lakes, about 130 miles from *Kalgan*. It is a large and busy place, surrounded by mud-walls; here Chinese traders meet the Mongols and barter groceries and cloth for wool, camel-hair, hides, tallow, &c. While there we found immense native godowns full of the above commodities, indicating a most extensive trade. Here also they purchase camels, oxen, and horses, which they sell on their return home all over the North of China. Two or three miles from the city are extensive Lama temples, where there are several thousand priests and where the rites of that system may be seen carried out daily in all their details, and in all their pomp.

Shan-hai-kwan, lat. 40 deg., long. 119 deg. 50 min. This lies at the extreme end of the Great Wall and only three or four miles from the sea. It may be said to consist of three cities, a central one, and one on the east and west, besides suburbs. It is the great gate through which all merchandize for Manchuria and Corea must pass. It stands in a good position and is naturally strong.

King-chu, lat. 41 deg. 12 min., long. 121 deg. 10 min. This lies not far from the sea, and is the seat of considerable distributing trade through the western portion of Manchuria. It is a well-built city, and has carts for hire like Pekin.

Toong-kwan, lat. 34 deg. 50 min., long. 110 deg. 5 min. This important fortress stands at the southern bend of the Yellow River on the Shen-si side. It lies on the slopes of the hills, has the river on one side and mountains on the other two, and so could be made almost impregnable. There is some business done, but its chief importance lies in its military position. It is called the Key of Shen-si.

THE RIVER AND ROAD COMMUNICATIONS.

THE YELLOW RIVER.—Next in importance to the resources of a country are its facilities for the transportation of goods, hence one of the first questions put to me on my return to Tien-tsin was, "What about the Yellow River? is it eligible for the conveyance of goods to and from Mongolia?" This question is very difficult to answer, and could only be satisfactorily determined by a civil engineer investigating its whole course. We crossed it at two different places, one lat. 34 deg. 49 min., long. 110 deg. 40 min., the other lat. 34 deg. 51 min., long. 112 deg. 20 min. We travelled parallel to its banks for three successive days, and made all the observations and inquiries we could. At the first place it was comparatively narrow—not more than 400 yards across, and the current was very strong. The other place was a sort of gorge, and the current still stronger. On our way along its banks we observed it sometimes spreading out into a broad stream, with currents here and there, as the case might be, and at other times compressed into a fine majestic rapid-flowing river. We saw a great many huge flat-bottomed boats laden with coal, from the north of Shan-si—some from places about 200 miles distant—floating on its waters. They came down the stream at the rate of 60 miles *per diem*, but only averaged 13 or 14 on their upward course. One Chinese traveller affirmed that it was navigable all the way round to Ning-hai, lat. 39 deg. long. 106, and even further, while others affirmed that it was navigable

with ease and safety only in certain parts of its course. My own impression is that the latter statement is the correct one, that it winds its way alternately in rapids and shallows, and that there are several portions where navigation is difficult. As far as relates to the rapidity of the current, I think a paddle-wheel steamer or a steamer with a strong stern paddle could easily make its way up. Surely there can be no shallows beyond the reach of modern science and engineering. One of the Jesuits speaks of a "cataract," but I am not sure what he means. I could hear of none in the sense of a great fall over a precipice, though there may be such. All the obstruction of this nature that I could hear of was a gorge with three mouths between Ho-nan-foo and Kai-fung-foo. The mouths were called respectively "God's Mouth," "Man's Mouth," and the "Devil's Mouth;" and we were informed that it was quite safe if you could guide your boat through "God's Mouth;" that the passage through "Man's Mouth" was somewhat doubtful; but if you were carried into the "Devil's Mouth" it was certain destruction. Passing Kai-fung-foo, the river flows a short distance eastward, then it leaves its old bed, spreads out into a sort of lake, and takes a northward course, flowing past Tsao-chow-foo on to the Grand Canal, where it takes possession of the bed of the river called Ta-tsing-ho, and through this channel pours itself into the sea. Perhaps the introduction of railways may supersede any desire to place steamers on this river. Certain it is, however, there would be no great difficulty in steamers entering by its new mouth, coming up past Tsi-nan-foo to Tong-ho, lat. 36 deg. 25 min., long. 116 deg. 23 min., on to Tung-chang-foo, and thence to the Grand Canal.

The Han River.—The river next in importance to the Yellow River is the Han-kiang or the Han River, which flows into the Yang-tsz-kiang at the city of Hankow, or the Mouth of the Han. This river rises in the south-western portion of Shen-si, and makes a zig-zag course through the south of that province and the centre of Hu-peh. Is is wide and deep, a great broad river more like a principal than a tributary, and navigable for good-sized boats as far as Hing-ngan-foo, lat. 32 deg. 30 min., and long. 110 deg., while junks can easily reach Yun-yang-foo, lat. 33 deg., long. 111 deg. 20 min. It receives several important tributaries, such as the river Tan-ho, which falls into it about lat. 32 deg. 30 min., long. 112 deg., and the Pih-ho river, both of which

are navigable for a long distance. From time immemorial it has been one of the great water roads of China, and is repeatedly referred to in their historical annals. In consequence of this there are a number of famous cities and large distributing towns on either bank, such as the cities of Fan-chung, Seang-yang, E-ching, &c., besides those mentioned above. Through means of this river and its affluents, Hankow supplies Hu-peh, Ho-nan and Shen-si with foreign commodities and receives their produce. At Si-ngan-foo we found goods from Hankow; and also met Chinese travelling from Shanghai, who had come per steamer to Hankow, thence per boat to a place called Loong-kui-tsai, from which there is a mule-road of four or five days' journey to that city. This shows that there is no hope of Tien-tsin competing with Hankow in supplying this part of China. We fully intended to return to Chefoo by this route, but circumstances led us to prefer the road *viâ* Ho-nan, in the hope of visiting Kai-fung-foo. See also Mr. Wylie's notes in the *Foochow Missionary Recorder*.

Rivers in Chi-li.—In the province of Chi-li there are three rivers which demand some notice in this connection, besides the Grand Canal, of which I spoke in a former paper. There are the *Pei-ho*, the *Shang-si-ho*, and the *Poo-too-ho* (wrongly spelt on the common maps Hoo-to-ho). Regarding the first I shall say nothing, as it is well known as the river by which Pekin receives a great proportion of its supplies. The Shang-si-ho may be said to rise far west on the borders of Mongolia and on the north of the Province of Shan-si (though there it has other names), and only takes the name Shang-si-ho between the Lake of Pau-ting-foo and Tien-tsin. It receives a great many tributaries. Out of these the Wang-niu-ho or Lu-li-ho rises at the hills west of Pekin, and becomes navigable for good-sized flat-bottomed boats near the celebrated coal districts of Fang-shan-hien. Passing through that place we found coals piled up in yards on the banks of the river (just as at railway-stations at home), and boats there to take them to Pau-ting-foo and Tien-tsin. We found that were it not for exhorbitant export and transit duties, coal could be laid down at Tien-tsin for about Tls. 3 or 4 per ton. This river is a great means of transit between Tien-tsin, Pau-ting-foo, and the west of Chi-li. The other river, viz: the Poo-too-ho, rises at the north of Shan-si near the centre of that province, and flows south, like the former receiving many tributaries. We saw a good deal of this river. There

were a great many corn-mills on it in Shan-si, and we found many places where huge reservoirs could be made with very little expense. This river does not become navigable till it reaches Ho-kien-foo, where it turns towards the north-east, and flows in the direction of Tien-tsin, where it like the Shang-si-ho falls into the Pei-ho. It aids in supplying the central districts of Chi-li.

Shan-si and Shen-si Rivers.—There are several other rivers in the north of China which have been an enigma to us for long, as we never could obtain satisfactory information regarding them. Judging from the maps, they look of some magnitude, and in that case of great importance, as their courses lie through rich and populous districts. We refer especially to the *Fuen-ho* or *Fun-ho* in Shan-si, the *Wei-ho* in Shen-si, and the *Lan-ho* in the east of Chi-li. The river Fuen-ho rises near Tai-yuen-foo, and flowing southward falls into the Yellow River. We fully expected this to be fit for boats, but, to our indignation shall I say? we found it only a huge mountain torrent, in the greater part of its course full of large stones and boulders, and utterly impracticable for navigation. The other streams in Shan-si are all similarly unnavigable. The Wei-ho in Shen-si has a course of nearly 400 miles, passes Si-ngan-foo and like the other falls the Yellow River. The country being flat here, we thought, surely this river must be of some value for transit, but were sadly disappointed; we found it a slow shallow stream flowing over a sandy bottom, and fit only for flat-bottomed boats used by farmers for the conveyance of grain. The Lan-ho, which rises in Mongolia, and at whose cradle we have been, is like the Wei-ho: flowing southward not far from Ze-hol, and passing Yoong-ping-foo, it spreads out lazily on its sandy bed, and slowly winds onwards towards the Gulf of Pe-chi-li; it is quite unsuitable for boats. The Leao-ho in Manchuria is not of any use for large boats above Newchwang, though small boats can get up near to Moukden, a distance of about 500 *li* or 130 miles by water.

The Imperial Highways.—The northern provinces are well provided with good roads; they were made by early Emperors and have been kept in good or bad repair according to the vigour or non-vigour of the Government. They radiate from the capital in all directions, one goes eastward through Yoong-ping-foo, Shan-hai-kwan, King-chow-foo, Moukden, Kirin, Ning-gu-ta, and on to the very extremity of the continent, having a good

cart-road to Poissiet, the Russian port on the east coast of Asia. Near Moukden this road branches off to the capital of Corea. Another great road goes north-east through Ku-pi-kow, on to Ze-hol, and thence to Parin-hotun and Poro-hotun, about lat. 45 deg., and I know not how much further northwards. A third goes westward through the Nan-kow pass, Siuen-hwa-foo, and Kal-gan or Chang-kia-kow, where it bifurcates; one branch going north by west to Dolonor, and the other going on to Urga, and Europe. A fourth goes south-west through Pau-ting-foo, Ching-ting-foo, to Tai-yuen-foo, thence south through Shan-si to Toong-kwan, the fortress at the southerly bend of the Yellow River. From this place it goes west past Si-ngan-foo, beyond which city it divides into two branches, one going west by north to Kan-suh and Thibet, and the other through Sz-chuen on to Siam. Another road runs nearly due south through Pau-ting-foo, Ho-kien-foo, Tuh-chow, Tung-chang-foo, Sien-chow, Hu-chin, lat. 33 deg. 10 min., long. 117 deg. 16 min. E., where it divides, one branch going to Nan-king and the other to Nan-chang-foo, where passengers embark for Canton. A sixth leaves the road to Shan-si at Ching-ting-foo, proceeds southwards *viâ* We-kyun-foo to Kai-foong-foo thence to the great distributing city of Fan-chung on the Han River, where travellers can hire boats which will take them by water all the way to Canton: this is the western Canton route. And there is yet another great road which leaves the southerly road at Tuh-chow, also spelt Ti-chow, and leads south-east through Shan-tung, giving off a branch which leads to Chefoo, now a good cart-road. These roads are carried in as direct a line as possible to their respective destinations. They are supplied with excellent bridges, some of them really magnificent, having twenty, thirty, and forty arches, as the case may be. Towards the west of Pekin and in Shan-si they are often of marble, and the balustrades finely ornamented by innumerable figures of animals, such as lions, tigers, dogs, monkeys, &c., &c. When the rivers are very wide the roads are well supplied with ferries, where huge boats are to be found capable of taking three or four carts at one time. In the province of Chi-li and parts of Ho-nan and Shan-tung the highways are perfectly level, and you can travel at the rate of 35 to 40 miles *per diem*. In Shan-si and the hilly districts progress is slower. Valleys and ravines are generally chosen when these do not diverge too far from the direct line; but where necessary roads are cut through

rocks, miles of the way are causewayed with huge blocks of granite, and the road carried manfully right over huge ranges of mountains. In the Shan-si passes and several other places the labour expended is something stupendous, quite in keeping with the other huge undertakings in this Empire, such as the Grand Canal and the Great Wall. These roads are usually from 70 to 80 feet broad in the plains, and are generally planted on each side with rows of fine trees, so that they look like some of the fine roads in England and on the continent, and in some places like grand avenues. Every few *li* there are guard-houses where soldiers used to be stationed, who were ready to accompany travellers during night to protect them from danger, and every 10 *li* or 3⅓ miles there are huge well-built signal towers on which fires were lit at night, and dense columns of smoke from wolf dung raised in the day time when any intelligence of importance had to be telegraphed. In addition to the numerous and well-supplied inns for travellers, there are also large inns for the Emperor or important officials, and places where post-horses are kept always in readiness, and where couriers can obtain fresh steeds to post along on their errands. In addition to the large cities which appear on the maps, there are large villages every 10 *li* or 3⅓ miles on the great highways; some of them very important and the centres of much trade. Few things impress the traveller more with the large-mindedness, ability, vigilance, and vigour of the former Emperors and the greatness of the Empire than these roads; and we do not wonder at the touches of exaggeration which mark the pages of Marco Polo, and the Jesuit fathers: for the bridges, cuttings, and the fine cities then in their glory would form a powerful contrast to the roads and works which existed in their native countries. And perhaps nothing so painfully demonstrates the decadence and utter emasculation of the present rulers than the wretched condition of many portions of these fine roads, which could be repaired by the expenditure of a little thought and a very little money.

Cart Roads.—But besides these highways, there are innumerable other roads intersecting the country in all directions, and forming a perfect net work, and these not simply foot-paths, but good roads traversed by hundreds of vehicles every day; so that wherever you wish to go you can have almost always a cart-road direct to the place. Many of these minor roads are also supplied with signal towers, inns, and every convenience for travelling.

PROPOSED RAILWAYS.—The country is admirably adapted for railways. The greater part is a plain, and when mountains branch inwards there are generally valleys, often very wide and fertile, through which lines could be carried. The great highways I have just been describing form the best guides both physically and economically, in reference to the most feasible lines. They form the most direct routes to the great emporiums of trade with the fewest possible natural obstructions. Their course lies also through the most populous districts, either so originally, or attracted by the facility of communication, so that lines of railways could be laid parallel to them all. But as such a net work of railways is out of the question at present, I would venture to suggest two great trunk lines, one running from Pekin south to Canton, with a branch to Shanghai; and another running east and west from some harbour north of the Yang-tsze-kiang, available for ships of large tonnage, and open all the year round; and from this carried through Shan-tung, Chi-li, Shan-si, and on to Shen-si with a view, ultimately, of being carried through central Asia to Europe—an undertaking not much more formidable than the great Pacific line in America now in process of completion. It would be well to begin with the first for many reasons, but more especially because in this case advantage could be taken of the banks of the Grand Canal for a portion of the way, and as this lies nearly direct through a country perfectly level, and is Government property, there would be no bargaining with private individuals, no grave-yards to upset, and, in short, the least violent change possible under the circumstances. I have no fear of the junk men who still remain on the canal rising against such an undertaking. Comparatively few now, they would soon find employment in the construction of the works needed for this enterprise, and they are not strangers to the kind of labour which would be required. And in reference to this and the muleteers and carriers of all descriptions, I am confident that the lateral traffic which would immediately spring up in connection with such lines would soon engage all their resources, and create a business which would astonish us. And I base my belief upon personal observation of the spirit of the people, confirmed by what has transpired in reference to steamers. These have been rapidly taken advantage of not only by the mercantile classes, but even by the literati, who are so difficult to move: witness the loads of scholars which are brought

from the south to Tien-tsin for the examinations in Pekin; also the numbers of mandarins, who now use them. The fame of steam-ships has spread all over the country; their safety and rapidity is in every man's mouth, so that railways would soon also command their approbation. I see therefore no great difficulty in the introduction of railways into China. The grave-yard question has been exaggerated; they are formidable only near large towns, and could easily be avoided; or where unavoidable a little extra money or an Imperial tablet would soon allay the clamour. No one who has thought carefully over the subject ever contemplates the multiplication of Treaty ports and Consulates in China. The impracticability of this has been clearly shown in an able article in the *Consular Gazette* dated July 15th, and yet every one sees the importance of this vast country with great resources all but untouched being thoroughly opened up. How, then, can the problem be solved? By the introduction of railways and the adoption of a system of passports; this would secure all that was necessary for the development of the country, obviate the necessity of the creation of minor agencies by large firms, and entail little or no expense on the part of foreign Governments. They would of course require to be managed at first and for long by foreigners, but this might be done by the creation of another service, such as the Imperial Customs, and so in no way oppose, but rather be subservient and a source of strength to the native Government. I sympathize with the published opinions of H. E. Sir Rutherford Alcock, H. M.'s Minister, that the Treaty should be revised impartially, that we should hear what the Chinese have to say as well as our own countrymen, but I humbly think we ought never to lose sight of the speciality of the case as regards the Chinese. They are in a state of transition, or rather differentiation; new thoughts and new ideas, and new means of warfare have got abroad among them, fermenting and exciting their minds. Year by year this is increasing, and it is as impossible to arrest its course as it is undesirable. The old paths will not now do; China can never again be governed in the old way. The country is far too large. Foreign ideas have made far too great progress for this. New channels must be provided for the new thought. New means must be adopted to meet the emergency which has arisen, else it will be confusion worse confounded. China is like a man under a course of medicine, we have

put him in this position, we dare not leave him alone far less trust him to his own ideas, for that would prove his ruin. We must take him in hand, point out the proper methods; and, as far as consistent, force him to follow them, until we have set him on his feet again in new health and fresh vigour, qualified to start on a new and glorious career. I do not despair of the Chinese being able to rise again from their prostration, nor even of the present Government being able to purify and re-organize the country; but new means must be adopted. In the present position of China nothing is so likely to do her real and permanent good as the introduction of railways. It would equalize the administration of justice—modify the evils of famine, enrich her people; it would provide means for the diffusion of knowledge, break down her hoary prejudices, and bring her within the pale of civilization. Moreover, it appears indispensible to the Government of the country. Four organized bodies of rebels at present devastate the Empire—one in Yun-nan, another in Shen-si, a third in Ho-nan—and a fourth in Shan-tung. They are destroying everything wherever they go. Unless there be some means provided of rapidly concentrating troops at any given point, I do not see how they can be put down, or peace and security introduced into this unhappy country. Railways or anarchy appears to me the only alternative now left to the Chinese people.

Shan-tung Cities.—*Tsi-nan-foo*, lat. 36 deg. 50 min., long. 117 deg. This city, the capital of Shan-tung, lies in a sort of basin, the ground on all sides being higher than the city. It is a much more important place than I expected to find it. There are several long streets full of large shops and life and bustle. The chief one is that which runs east and west, and including the western suburbs is 8 *li* in length. Several of the streets which run north and south are also crowded with excellent well-stocked shops. I saw quantities of Russian cloth, as well as a proportion of Bradford, Leeds, and Manchester goods. There were not a few book-shops, full of books and native drawings and paintings, indicating the presence of literary pursuits and tastes. We met two immense funerals, and saw several processions during the two days we were there quite equal to those I have seen in the south, indicating riches and profuse expenditure. There were several fine temples in the city, and two spacious examination halls, one for Bachelors of Arts and the other for Doctors of Law. There is also a Drum Tower, and all the furniture of a provincial

capital. There is one most interesting feature in connection with this city, I refer to the three springs which bubble up in three separate gushes of water about 2 feet high outside the western gate, and which fill the moat all round the city, and form a fine lake inside on the north. These springs are now enclosed by a high wall, and in front of them and around them are temples and gardens; the water is good tasted, somewhat tepid, but greatly prized by the natives. The lake has several summer-houses in it, and must be very pretty in summer; we hired a boat among the many which ply on it for hire, and sailed over and visited the famous places; we rather enjoyed our sail, though the morning air was raw. Fish of many kinds literally abound, and form no small proportion of the food of the people. There are about two thousand Mahomedan families and two mosques. Our butcher was of that persuasion; we found him a very decent man, and he gave us many details in reference to them. These people all turn to us, and claim kindred as worshipping the same God. There are fine hills on the south of the city, on which are some famous temples, much frequented in summer. Owing to these and the low-lying position of the city, the houses are very damp (except on the western suburbs, where the ground is higher), and fever and ague is common. You have only to scrape a hole a few inches deep, and you find water. This city is within 4 miles of the New Yellow River, and would form an important market were this river opened to steamers.

Tsing-chow-foo,, lat. 36 deg. 45 min., long. 118 deg. 35 min., approaching Tsing-chow-foo, the old capital of the Province, we found the country fine, roads paved, and every thing indicating former grandeur. We passed through the Tartar city which lies on the north of the city proper, and passing over a plain entered the suburbs and city. The walls of the Tartar city are high and strong, but the people are not very numerous, and no business is done save in huckster shops. The city of *Tsing-chow-foo* lies in a hollow like Tsi-nan-foo, and has fine hills behind it; it is very large and has a great population. The shops have decreased in splendour, and are now almost all second rate, but it continues to be the centre of a great local trade.

Kyau-chow, lat. 36 deg. 16 min., long. 120 deg. 10 min. This city was in former times the most important centre of trade in the east of Shan-tung. It received its supplies from the south by the sea, and distributed goods all over the country. Now,

owing to the rising of the coast or the filling up of the bay—for it is difficult to determine which—and especially to the opening of the port of *Chefoo*, business has greatly fallen off. What is now the port of *Kyau-chow* is a small town called *Ta-poh-tur*, five miles from the city, situated about thirteen miles by water from the sea, on a creek which is as nearly as possible quite dry, when the tide is out. The Ningpo and Fohkien junks anchor in the roadstead and the cargo is brought up in flat-bottomed lighters, fifty or sixty of which we saw lying high and dry on the banks waiting the flow of the tide. The country all round as far as the eye can see is a dead flat; seawards it was quite marshy, and though we were only six miles from the shore as the crow flies we could not descern it; all we could see was two or three small islands a considerable distance away. The Chinese Government wished it to be made the port of Shan-tung rather than Chefoo, but this would have been fatal, as the bay cannot be deep,—is either filling up with the monsoon or rising of itself, and appears exposed to the wind from almost all directions. The city of Kyau-chow bears unmistakeable evidence of its former wealth and importance. The streets in all directions are bridged over every few yards with Pai-lows of endless device; some are made of granite; some of sandstone. The cross-beam is one piece of stone reaching from one side of the street to the other; and the upright pillars, also of one piece, rest on immense blocks, giving a richness to the city which is stiking. These abound also in the suburbs, as well as in the city proper. The site and structure of the private houses also speak of the richness of the place; many of these cover a large space of ground, having walls often thirty feet high, if not more, carefully and strongly built. Many houses had high poles before their front-door, indicating that some member of the family had been a mandarin. The city itself is not large, but the suburbs which are walled round are extensive. The trade is carried on chiefly in the western suburbs. The people appeared rather hostile to foreigners; they called us all sorts of names; one man partially drunk was exceedingly abusive. *Quod est in corde sobrii, est in ore ebrii.*

Tung-chang-foo, lat. 36 deg. 38 min., long. 116 deg. 11 min. This is a very important city situated in an excellent position. It lies near the new course of the Yellow River, and on the banks of the Grand Canal. The eastern suburbs are very extensive and have warehouses rivalling many in Tien-tsin and Shanghai. It

might be made the terminus of a line of inland steamers, as there is no doubt of the navigation up to that point.

The other *foo* cities, such as Yen-chow-foo, Yi-chow-foo, Lai-chow-foo, Tung-chow-foo, and Tai-ngan-foo are quiet departmental cities, important only as centres of rural trade. Besides the cities above mentioned are several *hien* cities and towns worthy of notice as the centres of considerable distributing trade. The chief among these are Wei-hien and Whang-hien, Chu-ching, and the great town of Tsu-chwen, near Chi-chow, and Tei-chow and Lin-sing, near the western borders of the province.

But I shall not attempt to describe any more cities, but only say in general that excepting in Shen-si and Honan and some places in Shan-tung where scores of cities and hundreds of villages have been burned down by the rebels within these two years, and are still lying in ruins all over the district, the country appears prosperous and the people well fed and well clad. This is eminently the case in the northern half of Shan-si. There the cities are more numerous, and the cities themselves more populous than anywhere else, many of the "hien" or 3rd rate cities being more crowded than a "foo" or 1st class city of other provinces. The villages of Shan-si, too, are very numerous, generally surrounded with high mud-walls, full of goods of all descriptions, and the people giving not a few indications of wealth and prosperity. I have found foreign goods of several kinds in every province in all their busy cities and markets, such as Manchester cottons, Russian woollen goods, matches, needles, &c., &c. I was surprised to find everywhere such quantities of Russian cloth; they evidently carry on a most extensive trade through Mongolia. We met Russian-speaking Chinamen in several cities, rather an ominous circumstance.

Recurring to Shan-si, I may mention that the architecture of this province presents two notable features. In the mountain districts we found whole villages living in houses scooped out of the sides of the sandy hills—veritable troglodytes—and this not from poverty, for the front of their caverns were faced often with hewn stone and had finely-arched doors and windows. The people evidently preferred it, for they had plenty of stone and plenty of money to build houses in the usual style if they had wished. Some of these villages were extremely picturesque; there were sometimes three, four, five, and six stories rising one above another at the front of a hill. The occupants often went up to them

by ladders. Here the peculiarity of Edinburgh was seen in its rudimentary state. In the plains the houses had flat roofs on which the people winnowed and thrashed their corn and the women sat at their various employments. Large houses had often square towers, giving them the appearance of old English churches. The people of the province appeared much more superstitious than anywhere I have been. Every city and every village and even every cluster of houses had a tower—sometimes a very tasteful one—erected generally at the south-east angle, as a protection against evil influences; and, worse them this, we found trees in many parts covered with votive offerings, and before which stood altars and pots of incense, indicating that they were worshipped; and, in fact, we were left in no doubt on this head, for on many of them we found inscriptions in large letters—"If you pray you will certainly be heard." Better living trees than wooden blocks! we thought, though both are bad.

We never were at any loss for food or necessaries on all our journeys through these provinces; nor have we ever had the least molestation from the people. They have evinced great curiosity to see us, which has often taken disagreeable forms, depriving us of rest and comfort, and on my last journey they actually took out one of the windows to see us, because I had closed the shutters, but nothing further, and even in the midst of the greatest excitement to get a view of the foreign devils, as they called us, an appeal to their sense of good breeding or a pleasant word would allay a hub-bub, and permit us to go on with our work in peace. This has convinced us that the opposition to foreigners so much talked of must have existed with the officials, and not with the people, for it seems impossible that virulent feeling against us could have died out so soon.

Another most important matter should be mentioned. We have found our passports omnipotent all over this country. Whenever we were in any trouble with our carters or required assistance of any kind, the presentation of our passports at the office of the mandarin invariably procured the help we needed.

As a rule, the people in the northern provinces are larger and stronger men than south of the Yang-tze-kiang, but they are much less refined. There are fewer scholars, and these not so far advanced in their literature as their brethren in the south; still there is a large proportion devoted to letters, and the great mass of the people understand a sufficient number of characters to be able to read, especially books in the mandarin colloquial.

All over these provinces they speak the same dialect with very insignificant differences, and not only so, but this *patois* prevails throughout Kan-su and Sze-chuen—in fact, over two-thirds of China—a most important fact for those who seek to introduce new truths and a new literature among this most interesting people.

I need hardly say that ignorance and superstition prevail everywhere and among all classes; and if there be less of the latter among the better educated, a species of atheism takes it place, which is equally detrimental to the moral character. As a consequence, the objects supremely sought by them are the gratification of the lower appetites of their nature, and as money secures that and whatever else they desire, it is grasped after by every one with all the eagerness of men who have nothing better to look for, and the deceit of those who have no high principles to regulate them in their pursuit of wealth. Immorality abounds and opium smoking is spreading like some terrible virus through all branches of the people and laying thousands of strong men low.

The Shan-tung men and the Shan-si men are famed as the most enterprising in the north of China. The Shan-si men have penetrated Mongolia, carrying with them a measure of civilization. Numerous families from Shan-tung have colonised Manchuria, and are rapidly assimilating that country in every respect to China. But not only are they inclined to migrate, many are also ready to adopt any measures which will afford scope for their industry and ingenuity. Several have expressed a strong desire to begin mining operations in places at present untouched; one has applied for foreign cotton seed, another has purchased a spinning machine for the manufacture of cotton yarn, and so on. But, alas! for their enterprize. An incubus rests upon them paralyzing every effort. When a man attempts to step out of the ordinary routine, an ill-disposed neighbour or a petty bailiff comes in and threatens to inform against him unless he gives him so much money. Suppose this rascal's demands are met, the mandarin next appears with his exactions, and the man is generally ruined.

> "Little fleas have big fleas, upon their backs to bite'em
> "These fleas have other fleas, and so on *ad infinitum*."

These lines of Swift's, thus altered, set the matter vividly enough before our eyes; but they are too ludicrous for the gravity of the subject. It is miserable to see such a people as this ground down

into fixed automata by such a system, and most lamentable of all to find it pervading all classes and all departments of state up to the very highest position.

And this extends to religious matters as well as secular. If a man adopt Christianity he is often set upon by petty officials, and it is this which renders it so indispensible that our treaties should not only guarantee the missionary protection in his labours, but that the converts be defended from obvious and illegal oppression.

ARTICLE IV.

NOTES ON THE PRODUCTIONS, CHIEFLY MINERAL OF SHAN-TUNG.

By the Rev. A. WILLIAMSON.

Until recently very little was known of the minerals in Shan-tung. Vague impressions regarding the existence of coal at Po-shan-hien and Wei-hien constituted about the sum of our knowledge, but now we can speak with some degree of precision. Various places have been visited, and samples of coal, iron-ore, galena, &c., &c., have been brought to Chefoo, and pronounced excellent.

Coal.—There are three great coal-producing districts in this province in active operation; several minor ones, and other places where coal is known to exist, but where mining is interdicted. The chief among the great producing districts is the valley of the Lau-fu-ho, long. 117 deg. 56 min. E., beginning about lat. 36 deg. 50 min. N., and extending south to lat. 36 deg. 30 min., including the cities Chi-chuen. Yen-shih-ching, and Po-shan-hien. This valley runs north and south, and the hills on both sides are perforated with coal pits. Several varieties are produced; some fine bituminous coal, some partly bituminous and partly anthracite, and other kinds difficult to class. This district is famous all over the country, and supplies all the neighbouring towns and cities. Approaching this place, I met a very unexpected product on wheelbarrows, often bound for distant places. I refer to coke; and on reaching Po-shan-hien, found it manufactured in immense quantities. I saw three different kinds of coke; found it stored in large yards, just like those at railway stations at home, and exported in large quantities. They use it for smelting silver and for purposes where great heat is required. This speaks volumes for the quality of the coal.

The second district next in importance lies a little to the south of Yi-chow-foo, lat. 35 deg. 15 min. N., long. 118 deg. 24 min. E. The country here is a plain and the coal is obtained by sinking

pits of greater or lesser depth. I found three kinds, viz., bituminous, a species of lignite, and another very inferior quality. The people assured me of its abundance; they said that they found it wherever they chose to sink a pit. Here also I found them manufacturing coke, although what I saw was much inferior to the coke at Po-shan-hien. The proximity of the river Yi-ho adds to the importance of this district. It flows past the field, and, by means of flat-bottomed boats, coals could be conveyed to Tsing-kiang-pu on the Grand Canal, thence to Chin-keang and on to Shanghai.

The third district lies twenty *li* or so to the south of Wei-hien, lat. 36 deg. 40 min., long. 119 deg. 12 min. The coal here is plentiful, and is of excellent quality. It is not very far from the river Wei-ho, nor from the seaport, and, could very easily be brought in junks to Chefoo. The places of minor importance are Sin-tai lat. 36 deg. 7 min. N., long. 117 deg. 56 min. E.; Lai-woo, lat. 36 deg. 24 min., long. 117 deg. 44 min.; and Chang-kiu, lat. 36 deg. 57 min. N., long. 117 deg. 31 min. E. I met coal from all three places, that from Sin-tai and Lai-woo was capital, but the Chang-kiu coal inferior. At the latter place we were told there were two seams. One near the surface and the other some feet further down. The coal is mined at all these places in the usual Chinese fashion. A pit is dug down, or a hole is made, at a more or less acute angle in the side of a hill, and the miners work on until water rises; they then leave that place and open another pit. Thus they in all probability miss the finest quality. Judging from the huge lumps which we often saw, it is evident that the coal strata are of considerable thickness. Besides these places where the coal is actually worked, it is reported to exist in several others, such as outside the east gate of the city of Kyau-chow, long. 120 deg. 9 min., lat. 36 deg. 17 min., in the neighbourhood of Kwan-sae, lat. 35 deg. 45 min., long 119 deg. 20 min., at Law-sze-shan, long. 121 deg. 10 min., lat. 37 deg. 30 min., and at Tung-chow-foo. Though we have thus gained something like a definite idea of the quality and quantities of the coal at present produced, yet it has only been to give us a still more indefinite idea of the actual extent and value of the coal fields in the province; for, judging from the direction of the prevailing mountain, ranges, S., S.S.W. to N., and N.N.E. and their geological features, there is reason to believe that it exists throughout the whole of the centre and east of Shan-tung.

There is one thing in this connection, which has been brought to light by the missionaries at Tung-chow-foo, which is creating considerable interest and likely to have an important issue. I refer to the fact that an interdicted coal mine has been found within two miles of the city and close on the sea-shore. The existence of the mines first reported by the natives and afterwards denied by them, has been set at rest by the discovery of a tablet half buried in the ground, where the pit was, forbidding the further working of the mine. The writer has a copy of the inscription in his possession. It is dated 11th year of the Emperor Kia-king, 6th moon, 11th day, which makes it A.D. 1806. It is issued by the Chi-hien mandarin, and declares that as the pit disturbs the Fung-shui of the villages burial-grounds, and neighbourhood, it is henceforth closed, &c. Afterwards an application was made to re-open it, when the *literati* took the matter in hand, and insisted on its continuing shut, and succeeded in their efforts. Seeing that this city is an open treaty port, that it is far removed from the capital, that the pit is in a comparatively quiet place lying in contiguity with magnetic iron-ore, galena, and silver-ore and that it is within 30 miles, by sea, of Chefoo, no doubt attempts will be made to work it. Should it prove as productive of good coal as is anticipated, it will be a great matter to all—natives and foreigners—and a boon to the steamers on the coast and the men-of-war which coal here.

Iron.—This most important metal has been found in several places far removed from one another, and in such positions as to indicate its wide distribution. Very fine iron-ore, viz., the black oxide of iron, has been procured at a hill called Pau-shan, about 50 *li* south of Tung-chow. It lies near the surface, and there appears to be plenty of it. It is nearly pure metal and strongly magnetic, and draws a needle after it like the strongest loadstone, which it really is. When in the city of Tsi-nan-foo, the capital of the province, I saw a man sitting at the side of the main street selling pieces of this kind of ore as wonderful stones, which, on being struck, "grew a beard and drew iron after them." Inquiring where they came from, he informed me that they were from the city of Ha-ta, in Manchuria, the most distant and wildest place his imagination could think of. I felt persuaded they were from the neighbourhood, and found out afterwards that the hills behind the city contained the ore. Having examined the pieces he had, I feel persuaded that the ore was of the same na-

ture and geological formation as that near Tung-chow,—two hundred miles apart,—and this ore is the most valuable of all iron-ores. Since then these hills have been visited by a geologist and found to contain vast masses of this ore cropping up to the surface. Iron-ore of a somewhat different description has also been procured from the hill called King-kwo-shan, to which we shall have immediately to refer, as producing galena and silver-ore. This hill is about 50 *li* to the south by east of Tung-chow. And yet a third description, very much like specular iron-ore, has been found in the neighbourhood of Chefoo. Iron is also reported to exist in the hills behind Foo-shan-hien, within ten miles of the port, but this has not yet been verified.

Gold.—When I first began to make inquiries regarding the minerals here, I was astonished at the universality of the knowledge of the existence of gold and the apathy regarding it. Every one seemed to know of it. A native literary friend said that "it was found in the sand of almost all the streams in the eastern portion of the province after heavy rain." Another well-educated man acquainted with the district reported the fact in nearly the same words, and the other day a man, a scholar from Hai-yang said that it was found in the rivulets in his neighbourhood. But while it thus appears to be very widely distributed, there are several places which stand out pre-eminent. The first is Kieu-dien, 70 *li* S.E. from Lai-chow, lat. 37 deg. 12 min. N., long. 120 deg. E. and 95 *li* N.E. of Ping-tu. Marvellous stories relating to the richness of the quartz, and the sand are current among the people, which of course have to be taken *cum grano salis*. I was told that a tea-cup full of the quartz, ground down, would sometimes yield two oz. of gold, and that 100 catties of the sand was worth about 1,000 cash; I was also informed that many years ago a man came from Shen-si with 300 followers, and in two months cleared 50,000 oz. after paying all expenses and so on. Two or three years ago, a company of respectable men belonging to the neighbourhood made a proposal to the Chi-hien mandarin to work the mine, but he demanded 10,000 taels in hand before he would allow them to commence operations. They offered 3,000 taels, but did not venture a larger sum—more especially as they could not tell how much more might be demanded after they had commenced. The mandarin remained inexorable, and so the project was given up. I mention this to shew why so few care to engage in the mining of the precious metals. The *jus metal-*

lorum lies with the Emperor and Government, and they have no scruples in the matter of squeezing. The mandarins also say that they are afraid of disturbances among the workers of such mines.

Another place, famed as a market for gold-dust is Ku-hien, about 18 miles W. by S. from Chefoo. It is procured in the streams which flow from the Lau-sze-shan. I have passed several old gold-washings on the banks of the river which flows past the town.

A third place is Kow-tew near Ning-hai, 60 *li* S.E. of Chefoo. In my last journey having passed through a district 100 *li* to the S. W. of Chu-ching, long. 119 deg. 45 min. E., lat. 36 deg. 1 min. N., apparently full of minerals, and having arrived at the village of Kwun-sae and finished my work, I enquired of the inn-keeper—as my custom was—about the products of the district. He told me of a wonderful hill about 10 *li* south of where we were, which he affirmed was full of metals. It was called the hill of the "Seven precious things," and yielded gold, silver, copper, lead, tin, iron, and coal. He further said that it had been mined up to the close of the Ming dynasty, but was now forbidden. Deeming his story to be too good to be true, I sent out my assistant to enquire quietly about it, and he returned affirming that the matter was well known, and that two or three persons independently confirmed the inn-keeper's report. Though no one cares to engage in the regular operations of mining for the reasons already stated, yet any one is at perfect liberty to search the streams. Accordingly, every year a good many of the natives engage in this employment. They often find nuggets of varying size, which is a great temptation to persevere, in spite of failure. And yet last year I have been told that the gold-washers made on an average about one dollar per day in the district of Tsi-hya.

Galena.—Lead-ore, containing lead and silver in varying proportions, appears to be very widely distributed over the eastern portion of the province. We hear of its existence in all quarters. We are assured there is an interdicted mine in the hills close behind Chefoo. We hear of it south towards Hai-yan, and west towards Wei-hien. A mule-load of the ore has been brought from King-kwo-shan, 13 miles E. by S. of Tung-chow, already referred to, and two mule-loads have been got from another place near Ning-hai. Both specimens were most excellent, containing about 80 per cent. of lead; that from King-kwo-shan was parti-

cularly valuable, and contained a percentage of silver. In reference to this latter place, I am told on good authority that while on the south side of the hill lead prevails, on the north, silver predominates, especially in one spot. In fact, I was told that one catty of the ore sometimes yielded 8 ozs. of silver, but I do not vouch for this. Again, about 2 or 3 miles south of the city of Tung-chow-foo a tablet has been discovered relating to a lead mine in that locality. It announces that the mine has been closed owing to the representations of the elders of the surrounding villages, who affirm that the opening of the mine disturbs the Fung-shui of the neighbourhood,—the old story,—which shall hold its spell over the people till the truth enlighten them, and the roar of the railway engine shall dissipate it for ever.

Copper.—Specimens of copper-ore have been brought from the neighbourhood of Chang-kia-chwang, 110 *li* SW. of Chefoo, and there is every reason to believe that it abounds there and elsewhere in this part of the promontory.

Precious Stones.—Travelling round the promontory two years ago, I found large numbers of pebbles among the people. Some very fine ones, bearing a strong resemblance to the cairngorms and stones got on the west coast of Scotland. There were several varieties in structure, shade and colour, and many of them were such as would take on a beautiful polish. The place where they were procured in most abundance was to the east of Yung-ching, on the sea coast, at the extreme end of the promontory. But the most famous place for precious stones is a hill about 100 *li* south of the city of Tsi-mi, long. 120 deg. 32 min., lat. 36 deg. 22 min. This mountain forms one of the Ngan-shan range, is crowned with temples, and belongs to a fraternity of priests, who every year obtain a very large income from their sale. The stones are of various kinds, the prevailing kind being rock crystals of various shades, of which they make spectacles. There are others of different species, which are used for ornaments of various descriptions. Since my return I saw a large purple-coloured stone from this hill exposed for sale in a native hong. It had many features of a true amethyst, though one or two things appeared to indicate otherwise. It was as large as a boy's head, and weighed 12 lbs., and, if genuine, would be worth I know not how much.

Marble and Granite.—Of these we have many varieties, but as they are of less importance, I need not trouble you with an account of them here.

Asbestos.—This strange fossil mineral is found at King-kwo-shan, and also at Law-sze-shan, both of which places have been formerly noticed as producing other minerals. The natives use it for making Fire-stoves, crucibles, and other fire-proof purposes. The fibre is good and very feathery, and by the admixture of cotton or hemp could be woven into articles of clothing. Such articles being exposed to fire and having all the alloy consumed, would afterwards form fire-proof garments, such as ancient history speaks of, and such as are used in Legerdemain. But the mineral would make most excellent fire-brick, which would be cheaper and more durable than any others. This is worthy of the consideration of the masters of the steamers on the coast.

Sulphur.—Sulphur is procured in several parts of the province. I found the natives making copperas (sulphate of iron) at different places in the valley of Law-foo-ho.

Sulphur Baths.—Speaking of sulphur reminds me of the hot sulphur baths which are found throughout the district, and which deserve mention as an increasing resort for foreign invalids. The baths in greatest favour with the Chefoo community are those at Ngai-shan, about a day's ride from the port, a little to the N.W. of Tsi-hya. But besides these there are others at Loong-chwen, 60 *li*, east of Ning-hai, at Wun-shih-tun, 70 *li*, south of Tung-chow, also near Yi-chow, and at Chau-yuen, 60 *li*, west of Hwang. At all these places there are regular bathing establishments, a square tank with a pavilion over it for the public, which is generally crowded from dawn to dusk by Chinamen, and a private bath for mandarins and wealthy persons. The sulphurous water from these springs varies in temperature. The baths at Chau-yuen are the most remarkable; there, at one place, the water rises almost boiling hot and you can cook an egg on the spot.

Saltpetre.—This salt is found in several places. It is produced in considerable quantities in the neighbourhood of Kin-chi, lat. 36 deg. 16 min., long. 119 deg. 34 min., and I found it extremely good at Po-shan-hien.

Glass.—There is another article of manufacture at Po-shan-hien which is little known to foreigners, but which proves a most important article of internal commerce. Long ago the natives discovered that the rocks in the neighbourhood, pulverized and smelted with the nitrate of potassa, formed glass; and for many years they have given themselves to the manufacture of this

article, I found them making excellent window-glass, blowing bottles of all sizes, moulding cups of all descriptions, and making lanterns, beads and ornaments of endless varieties. They also run it into long rods—about 30 inches—which they tie up in bundles and export to all parts of the country. The rods of pig-glass cost 100 cash per catty at the manufactory. The glass is extremely pure, they colour it most beautifully, and they have attained considerable dexterity in manipulation. Many of the articles were finely finished. To pass to other matters on which it seems necessary to say a little:—

Cotton.—This important staple is grown in great quantities in the western and south-west portions of the province; and could be raised in much greater quantities if necessary. There are two kinds, viz., that commonly exported, which is familiar enough, and another superior kind, which is very strong in the fibre, and of which they make cash-bags, saddle-bags, and strong cloth.

Silk.—There appears to be considerable mis-apprehension in reference to the silk produced in Shan-tung. Many imagine that there are no mulberry trees, and that all silk which can be obtained must come from the worms which can live on the oakshrub and such trees. Here they err. Mulberry trees are very common in the plains throughout the province. During my last journey I found them in all directions out of the reach of the north wind, and passed through large orchards of them. The truth is there are three kinds of silk worms and three kinds of silk in common use among the people, viz., the brown common silk, of which they make the well-known pongee; the second, a beautiful white silk; and, again, a still more beautiful yellow silk; the third, a blackish silk, made from worms which feed on the pepper, tree. Of these three kinds there are various qualities depending on the feed and care taken in the culture of the worm. One quality of the second description is famous for producing a texture almost impervious to stains. The third kind produces a cloth exempt from the attacks of insect, and greatly prized. I believe that when the matter is looked into Shan-tung silk must rise into an important article in the foreign market.

Hemp, China Grass, &c.—These fibrous plants are well-known, so I need say nothing save only to call attention to them, and remark that they can be produced in any quantity to meet the demand.

Dyes.—We have indigo, madder, a fine purple dye, a yellow dye from the leaves of the why-shoo, the famous green dye, and others of less importance.

I may add that, having travelled through the province in every direction, and visited all their chief cities and almost all places of any importance, save a corner toward the northwest, I have found the people civil, inoffensive, only curious and greedy, with a little spice of the anti-foreign element,—yet, like other Chinamen, morally false and foul. Excepting towards the east, there are cart-roads as good as anywhere else in China, and every facility for travelling. The country is extremely fertile, producing great crops of cereals, from magnificent wheat down to rice, esculents from good potatoes down to the egg plant. All sorts of fruits, such as grapes, apples, pears, pomegranates, persimmons, &c., &c.; also beef, mutton, game, &c., &c. Recent travels and researches have revealed to us immense fields of coal and iron in Shen-si; immense fields of coal in Chi-li; and also great fields of coal and iron in Manchuria. Those taken in connection with these open up a vast subject of speculation and foretel a great future. Here we have every element necessary to progress and dominion; we have coal, the source of steam power, and that which makes every kind of mineral valuable, as it affords a cheap means of smelting them. We have iron for machinery and raw materials of the most important descriptions in profuse abundance; we have excellent stones for building purposes; we have precious metals for currency, and marble, and precious stones, for ornamentations; we have a most fertile and varied soil, grain to nourish, and fruits of all kinds to please the appetite. We have men in some degree educated, with clear heads and strong frames; and we have one colloquial throughout the whole country, which also has the advantage of being a written language. Providence has not placed these elements of power here in vain, so that, sooner or later, we may reasonably anticipate that China shall rise from its decrepitude, and either of itself, or under the guidance of western genius, with more than renewed youth, rule over this part of the world. The north generally (all the world over) dominates over the south, and China will not form an exception to the rule; for here in addition to better brain and muscle and climate, we have the advantage of immense and varied resources in juxta position; and as Shan-tung has the pre-eminence in geographical position, with safe and commodious harbours open

all the year round on the south as well as on the north of the promontory it is not unlikely that this province may be the seat of power in the new order of things which is certain to arise. And yet two things are clearly indispensible to any measure of advancement on the part of the people, and they should go hand in hand; first, the diffusion of knowledge, especially that truth which alone can enlighten, purify, and strengthen, the moral character of a people and, secondly, leaders to initiate them into the arts,—guide them in the path of progress and able to defend those who enter it, from the oppressions of their own countrymen.

ARTICLE V.

ENTOMOLOGY OF SHANGHAI.

By W. B. PRYER, Esq.

The position of Shanghai, regarded from an Entomological point of view, appears at first to be a very favourable one. Situated in the temperate zone with however a tropical summer, it might be supposed that insects requiring great heat, as well as those to which a moderate temperature is most suitable, would both be found here, the prevalence of water also would cause one to look for large numbers of insects with water-inhabiting larvæ. These expectations of a rich Entomological country are not very fully realized. On a hot summer's day a fine handsome Papilio (Papilio Pammon) may frequently be seen dashing through our compounds, and from all the neighbouring trees the call of the Cicada is heard only too plainly; a comparatively huge Dynastes is occasionally met with, and large grasshoppers are common; but the large sized insects most common here, are Longicornes, the larvæ of which, being wood feeders, could hardly be expected in any numbers in such an almost treeless country as this is; the Mantis is of frequent occurrence; but, beyond these insects the Entomological inhabitants of the surrounding district are nearly all of a moderate size, and the fauna is very similar to that of England. This is, I imagine, to be traced in great part, to the severity of the winters we have here, cold is the enemy of luxuriousness of growth in the Zoological world generally, and the insects which the hot summer would attract, are not able to stand the winter.

As I have said before, the insects we find most commonly, are nearly all closely allied with those occurring in England; even these are not abundant, and this I attribute to the sameness of the vegetation. We have none of those pretty hedgerows, tree shaded lanes, and frequent woods, which lend such a variety to a country walk, and at the same time afford cover to so many different descriptions of plants; here, a country walk generally

ends in one having to pick one's way like a rope dancer, on a narrow ledge of earth with a wet paddy field on each side. The few miserable substitutes for roads are not bounded on either hand by hedges; and bamboo copses, the nearest approach to woods, are wanting in the fine thick undergrowth of a copse at home, the ground being strewed with dead bamboo leaves and twigs. The graves are certainly objects in the landscape which we cannot boast of in England, and were it not for these, several large sections of insects would be nearly unrepresented here.

The only aquatic insects we have are those that can live in muddy water; the more interesting tribes Trichoptera, Sialides, Ephemera, &c., are as far as my experience goes, never found round Shanghai; I have given up some time to the search, but have only succeeded in taking one small species of Trichoptera. Of the species that can thrive in dirty water we have only too many, the mosquito is a well known example. Libellulidæ swarm, and sometimes appear in almost incredible numbers: I was once witness to a flight of this kind, the air as far as the eye could see was thick with them, and in a walk of about a quarter of a mile on each side from my house, they appeared in undiminished numbers; so that the whole British settlement must have had a tremendous cloud of them passing over it. Amongst foreign residents here they are usually known as storm flies; a good many of them are frequently to be seen flying about in the air over the Bund: their appearance is generally supposed to foretell high winds, but on the occasion of seeing the flight before referred to I noted that nothing unusual in the atmosphere followed.

These insects abounding in such numbers as they always do, must put a great check upon mosquitoes; if by some calamity we were deprived of them for one season, we should be almost devoured by the mosquitoes, as the Libellulidæ during their long larval period of nearly a year, and afterwards as imagoes, must consume an immense number of mosquitoes both in the larva and imago states.

One other reason, besides the want of variety of vegetation, for the scarcity of ordinary insect forms such as Lepidoptera, Coleoptera, Trichoptera and Hemiptera, is found in the prevalence of raptorial insects. One of the most ravenous of these, the Mantis, is so common, that to an Entomological eye batches of its ovæ appear on all sides, plastered to tree trunks or to walls, on dead

leaves, stones, twigs, branches of trees, in fact everywhere. When we consider that the mantis in all its stages is always ranging about the low herbage and brushwood in search of its prey, and that it has an insatiable appetite, the wonder is, that a single Lepidopterous larva escapes it; a full grown mantis will eat any living thing from a fly larva or a mosquito, to a large hawkmoth. The mantis always keeps on the ground or on short shrubs. Next to it, the spider claims our attention as a great insect destroyer. Hunting spiders which use no web but run over the ground, are common; the flat brindled spider frequently to be seen on the ceilings of our rooms, comes under this head; but the most formidable enemy to other insects, is a large and handsome species marked with red, gold, silver, and black. When full grown, it makes a web that catches even the largest beetles in full flight, and will frequently hold an ordinary cap when thrown into it; in many places, it is very common, and destroys a great quantity of insects. Round its web there is usually to be seen a much smaller spider which does not make any web of its own, but picks up the smaller insects that get caught in its patron's. It is amusing to see the quickness with which they run away when they see the rightful owner of the web coming towards them, occasionally however they get caught, and then they are wound up in their capturers silk, and carried off for eating as though they had been ordinary game.

Libellulidæ by day, and bats by night are the greatest foes of air frequenting insects. I was at the Fung-whang hills in June last summer and the Libellulidæ had then nearly cleared off the rest of the insect world; all over the place they had taken up their positions, each one cruising over a space about 10 feet long, and whatever insect appeared in this space was immediately pounced upon; should one of the dragonflies encroach upon its neighbour's domain, a fight ensued directly. There were two or three fine large species that took up regular positions in this way; the smaller ones had to skirmish about all over the place, and get whatever they could; and when I was there, so few other insects were left that the large ones had been obliged to turn their attention to these, their smaller brethren of the same tribe, and seize and prey upon *them;* this I saw several times. In consequence of the overwhelming numbers of the Libellulidæ this was almost a blank day to me; though only a few weeks before, when there were only a few of them about, the same ground was rich with all sorts and tribes of insects.

The quantity of bats to be seen flitting about on any mild evening here, far exceeds the number of these animals, usually to be seen at any place in England; and as they are entirely insectivorous we may fairly suppose that a much greater destruction of insect life is caused by them than at home.

I think we are to conclude from these observations that it is only those species of insects peculiarly favoured with means of concealment or defence that have much chance of existing. I have paid most attention to the Lepidopterous order of insects, and here I have found this fully borne out; Papilio larvæ have a process in their heads which unfolds itself like the horns of a snail, and when developed, has a very powerful scent, a sort of concentrated essence of the leaves of the tree upon which they live; in the case of P. Pammon for instance, which feeds upon the citron, a strong smell of lemon comes from the horns. This singular apparatus would certainly drive off any less powerful foe than the Mantis, and might even discomfort that insect, the great enemy of all Lepidopterous larvæ. Many Bombyx larvæ are able to sting with great severity; in some cases a blister is raised upon the hand if they are incautiously touched, others make red marks only, but the smart is felt for two or three days. The stinging power is contained in the fine hairs which clothe the body of the caterpillar; they are so fine that the slightest contact is sufficient to make them pierce through the skin, and in all probability they convey poison into the flesh. The cocoons of a great many insects are so admirably contrived to look like a piece of the substance upon which they are fixed, as to defy the closest attempts at discovery; while others though in rather conspicuous places and easily found, are of so hard a texture that they are quite safe from the attacks of any other insects. As an illustration of the latter description of cocoons, I may mention that of a species of Oiketicus, which, with a dead leaf wrapped round it, may be seen dangling from nearly all the trees in the settlement, in the winter time.

Up to the present time I have 21 different species of butterflies taken round Shanghai, and 6 in addition at Fung-whang Shan. Several of them are either identical or very closely allied to indigenous British species, and amongst them we can boast of 4 species of Papilio, one of which, P. Machaon is the only species of this genus to be found in England. One singular fact about this butterfly is, that, contrary to its habits at home, where it is

only to be found in low and fenny districts, it is here usually seen at the extreme tops of hills; the only places I have noticed it being the summits of the Fung-whang and Tung-ting hills.

We have a good many sphinx moths, some of them very common. The Acacia when in bloom attracts a great many; nearly always just after dark, half a dozen fine large sphinxes are to be seen at one time buzzing round its flowers; they are however nearly always confined to 3 species. I have altogether in my collection 23 species of Sphingidæ, and am sure that a great many remain to be taken.

Amongst our Bombyces we can boast of Saturnia Cynthia; the Ailanthus silkworm, the cultivation of which, as a means of growing silk in England, is attracting so much attention at home just now; we also have Cynthia Mylitta, which is domesticated in some parts of China, and produces the Tusseh Silk; both of these are fine looking insects.

The handsome Actias Luna is common both in its larva and imago states; the former are to be found in every privet bush, and the latter during the summer may be seen quietly gliding over the ground, or hanging from the tips of the branches in the hedges.

Noctuæ are not at all frequent; one or two species are tolerably common both at sugar and on the wing, but the total number of species is very small; at the present time I have exactly 62 different ones in my cabinet. Two or three species of Geometræ are abundant, but beyond these we do not find many: Tineina however are pretty common, one or two only too much so as the holes in our woollen clothes laid by for any time can testify. I attribute the scarcity of Noctuæ and Geometræ to the ravages of the mantis, which would always be ranging about places frequented by their larvæ; but Pyrales owing to the secluded mode of live of their larvæ which keeps them out of the way of predaceous insects, are the most abundant of our moths; the general run of them are larger in size than those common at home, and supply the places occupied by the Geometræ which are so abundant in our English woods.

Dynastidæ and different sorts of Cerambyx and Lucanus with a few Melolontha and Cetonia make up the bulk of the most noticeable of our beetles; Staphylina are conspicuous by their almost entire absence, and the ordinary run of small and minute sized beetles so abundant at home are not at all common here.

As might be expected from the nature of the country, Orthoptera are plentiful enough, and some of them are very fine handsome insects: the queer looking long snouted Gryllus Nascatus with wings about 6 inches wide, is common in the autumn, and so is a large species of Gryllus, the larvæ of which the Chinese keep in small wicker baskets on purpose to hear the continual little chirrup they keep up. The paddy fields in the autumn swarm with grasshoppers of all sorts and sizes. Locusts are occasionally to be caught, but I can hear of no chronicles amongst the Chinese of their appearance in any very great numbers about here.

Hemiptera are not often met with, a few are seen now and then. I have never heard of the occurrence of C. Lectularius.* Its absence however is not in any way to be attributed to the cleanliness of the Shanghai lower classes. I have a species of Nepa which measures 2¼ inches from the head to the end of the body. Sometimes on summer evenings large flights of a small sort of Notonecta appear attracted by the light, in such numbers as to completely cover the table in a very short time.

Bees are sometimes domesticated by the Chinese, a square wooden box is made to serve as a hive. The bees are called Ne foong, and honey Ne foong tah.

* The common Bug.

ARTICLE VI.

NOTES ON A PORTION OF THE OLD BED OF THE YELLOW RIVER AND THE WATER SUPPLY OF THE GRAND CANAL.

By NEY ELIAS, F. R. G. S.

The following is a copy of a portion of the journal kept on a journey from Shanghai to the Yellow River bed.

May 11th, 1867.—Leaving T'sing-kiang-pu, we proceeded over a dry sandy country in a general direction N. by W. to Wang-kia-yin-tszu, a village on the North bank of the Yellow River bed and distant about 2½ to 3 miles from T'sing-kiang. On approaching the bed it has merely the appearance of an insignificant depression in the otherwise flat and level country; and a closer inspection shows that this is actually the case, as its depth is very inconsiderable, even when taking into account the artificial banks which are 8 or 10 feet above the general level of the country. Near the north bank and in the deepest portion of the bed is a small creek partly artificial and containing small quantities of water in places, and upon these small detached pieces of water are a few boats. In summer when the floods come down from the mountains of Shan-tung *viâ* the Grand Canal, (Chun-ho) &c., this creek is said to flow to the sea for about 10 days each year, having a depth of water, varying from a few inches to about 3 feet; and this is all that is left of the Yellow River.

At Wang-kia-yin-tszu the bed of the River at flood limit was found by sextant measurement to be 551 yards, its greatest depth (by estimation) probably never more than about 15 to 18 feet.

About 1½ miles N. of Wang-kia-yin-tszu the Yeu-ho is reached, a stream there about 30 to 40 yards wide with a slight current towards the sea. This river though not navigable for large vessels all the year round appears to supply the place, to a certain extent of the Yellow River in this district, inasmuch as it is

the principal outlet to the same portion of the sea coast to which the Yellow River formerly led. It is also the high way to the important city of Hai-chow-foo distant 350 *li.* The distance to the sea at its mouth being 220 *li.* The banks of the Yeu-ho at this point (Yeu-ho village) indicate periodical floods; and indeed these are said to take place every summer, and to come by way of the Grand Canal (Chun-ho) and by other creeks from the northward, Shan-tung, &c. Moderate sized junks were seen here, the country everywhere flat and sandy and the dust intolerable.

One mile and a half S. W. of Yeu-ho village is Shi-ha, another small village on the North bank of the Hwang-ho, and from this place a road was followed, leaving S. W. along the bank, to Yang-kia-chong distance (from Shi-há) about 3½ miles.

Here the Grand Canal was cut, at the point where it flows for a short distance in the Yellow River bed and before its waters have reached the highest lock; all the locks being contained in a long deep bend to the southward which the Canal makes between this and T'sing-kiang-pu. The water here flows from the northward, although only some 2 miles or so higher up it has parted with the Yeu-ho.

The current at this time of year however is of course inconsiderable. From Yang-kia-chong we followed the old bed of the Whai, with the Canal flowing on our right hand, for about 1 mile in a southerly direction to a place where the latter takes a sharp bend East and apparently takes possession of a portion of the Whai's old bed; the lower portion of this bed, viz: to the left (E.) of our road being occupied by marshy backwaters, remains of old locks, &c., &c.

It is at Yang-kia-chong that the small creek in the bed of the Yellow River takes its supply from the Grand Canal for the few days in summer as mentioned above. It is said that there were formerly locks here made of earth or mud but that they were removed some few years since as useless. From the appearance of the banks, borne out by information from the people, the rise of water about here in summer would be some 20 feet above its present level, and considerably more than that above its lowest winter level.

From the short easterly bend of Canal, we struck across to the first, or lowest lock, and then up the Canal again to Ti-sze-za, passing 4 locks in the space of about 2 miles. From here a mile in a southerly direction brought us to the old bank of the Hung-

tsze-hu which appeared, with some interruptions to be a continuation of the East bank of the Whai. From this we proceeded N. E. to T'sing-kiang-pu, about 7 miles, passing through a flat grain growing country.

Beyond the bank which is an immense structure, and extends as far as can be seen S. and S. W., is a flat, sandy but cultivated country on a rather higher level than the country outside the bank, and this is the old bed of the Hung-tsze-hu which until 20 or 21 years ago is said to have risen yearly to this limit, and since then only on one occasion, viz: in the summer of 1866.

The "locks" are properly speaking not locks at all, but only large buttresses of earth, faced with masonry and built out in pairs into the canal which there flows at a great velocity and is of a good breadth. These buttresses confine the water (and at the same time deepen it) to about the breadth of a large junk; by means of windlasses fixed above each pair of buttresses, vessels are hauled through them and proceed through eddies and counter-currents under the banks to the next pair of buttresses where they are again hauled through, and so on. By this means vessels are enabled to pass what would otherwise be a rapid. The water however can be shut off or checked, by dropping sluice gates between any two opposite buttresses and this is done, it is said, in the flood season.

All about this part of the country there are roads, fairly broad, though deep in sand and dust and containing large ruts.

The means of locomotion and transport are varied; besides the somewhat precarious water communication large numbers of donkeys, ponies and mules are used both for riding and carrying packs and also for drawing carts. Wheel-barrows are common and also a kind of cumbersome three-wheeled waggon of the rudest construction, drawn by oxen, buffaloes, donkeys, &c., harnessed together promiscuously and generally four abreast, these travel usually in trains.

May 12th, 1867.—Called on the literary Mandarin of T'sing-kiang-pu, Tsing-Hu-tsing, a very polite old man, and having explained as well as I was able, through an interpreter, what I wished to see in the district, he was good enough to direct a "writer" to take us to any part of the country around and to give any information about it we might require. After considerable talk with this "writer" the following, relating to the water system was elicited; viz: that the Grand Canal (South of T'sing-

kiang) is supplied from two sources; 1st and continually from the Chun-ho, or (Grand Canal, northern sometimes called Yeu-ho) which flows through the locks, and 2ndly, during the summer months from the Hung-tsze lake and also through the locks; this latter being the cause of the great rise in the Canal in July and August and also of its strong current during those months.

Although the supply from the Chun-ho is said to be continuous throughout the year, it is by no means regular, as in winter the Canal at Yang-kia-Chong is very low, only just navigable, whilst in summer there are about 30 feet of water in it: this rise is caused by the floods in Shantung and the North, by way directly of the Chun-ho.

Troubles are said to exist at Hai-chow-foo and gunboats and troops are arriving from the southward all day and are proceeding North by way of the locks and the Yeu-ho.

Started in afternoon to verify the above information, more especially that portion of it which referred to the Hung-tsze. Walked to Yang-kia-chong and halted for the night. It was here ascertained that the river from the Hung-tsze to the canal was dry in parts; and not navigable; thus it became necessary to reach Kaou-lien-ki (the first town on the lake, and distant 70 *li*) overland, and donkeys, &c., were hired for the purpose.

May 13th, 1867.—*From Yang-kia-chong and Kaou-lien-ki* Route S. by W. about 3 miles to Tau-pâ, a village in the sharp curve of Canal just above the highest lock, and opposite which the creek from the Hung-tsze falls into the Canal. From here this creek could be seen flowing from the S. S. W. making a sinuous course, its breadth about 10 yards, and containing now a small quantity of water from this point to a distance of about 2 miles up: its banks point to a rise of about 6 or 8 feet in summer and at its junction with the Canal it falls (at this season) over a ledge of rocks about 1½ feet high. The Canal too at this point flows as a small rapid over rocks, &c., which in two months hence will be covered with water some 15 feet deep. Ferried across Canal and proceeded about 8 miles S. S. W. along the dry bed of the Hung-tsze to a point where the creek and the bank, seen May 11th, converge and beyond which point the Hung-tsze summer floods, it is said, never extend under ordinary circumstances.

Took the road on top of the Flood-bank and marching S. by W. 6½ miles, reached Kaou-lien-ki and stopped for the night.

May 14*th*, 1867.—Kaou-lien-ki, a miserable mud built village, stands on a portion of the bank jutting out into the lake and forms for itself a kind of harbour. There are large numbers of junks here, some of great size, trading between the lake ports to the S. W. and the Grand Canal, &c., &c., but not with Kaou-lien-ki which is merely the final port at this end of the lake and no place of trade.

Many hills were seen to the S. S. W. and S. W. One, a tolerably high one called Nor-jiu-san bearing S. 58° W. and distant about 12 or 15 miles, said to be 60 *li*. The Island marked on Du Halde's chart is not visible from here, it is said to bear about W. and is not high. The N. shore of the lake being perfectly flat and very low is soon lost to view as it stretches away to the S. W., but a small portion of it, covered with trees, and cropping up like an island, was seen bearing about W. N. W.

The bottom of this part of the lake is mud, and the water mud colour and very shallow, about 3 feet off Kaou-lien-ki, though further to the S. W. it is said to be much deeper.

The creek leading from the lake has been lately deepened and reembanked towards the lake end, and its channel cut and embanked for some distance into the shallow lake itself; *i.e.* to within about 1 mile of Kaou-lien-ki.

Marched at 3.30 P. M. and followed the bank about 11 miles N. by E., and then struck off across the country about N. N. E. reaching S. gate T'sing-kiang 1.30 A. M., 15th.

May 15*th*, 1867.—This morning procured a native chart of this district from the "writer" which confirms the above observations and contains all the correct Chinese names of places, rivers, &c. At 1 P. M. set out for Chin-kiang and the southwards.

The Hung-tsze bank is in most places about 120 feet broad at the bottom, and at the highest point is about 30 feet, the lake level being higher than the general level of the country on the other side.

The "backwater" in the above sketch is a kind of marsh or shallow ditch about 300 or 400 yards wide generally, and it is probably formed by digging out earth for the construction of the bank, as it is evidently artificial: there is water in it now only in places, and wild fowl abound.

With regard to the date of the desiccation of the Yellow River, it is sometimes said to have occurred 15 years ago, 1852; and sometimes 14 years ago, 1853; it is generally stated however to

have become shallower and shallower for some few years previous to its actually leaving a dry bed, and from all I can hear it appears that it was not till the autumn of 1853 that it ceased to flow altogether.*

The Hung-tsze it will be seen from the foregoing notes is far within its former boundary. So large a diminution has taken place in the quantity of water in this lake as to leave a large tract of its bed open to cultivation and habitation, and to render many miles of the old Flood Bank useless. The present flood limit does not reach within 5 or 6 miles of the northern part of the bank save under exceptional circumstances such as in 1866† when it attained its old limit, the wall. The depth of water on the space now annually overflowed is at all times trifling, only a few inches; but formerly, it is said, and indeed the bank with its 15 feet of stone facing speaks for itself, the yearly rise was something very considerable. The date of this diminution of the lake's waters is equally uncertain to within a year or so, as is the affair of the Yellow River, and probably from the same cause; viz, its having occurred gradually. It is generally reported however to have happened 21 or 20 years ago *i.e.* in 1846 or 1847.

South of T'sing-kiang-pu the Grand Canal is called the See-min-ho and after receiving its double supply of water as above, it rises, in summer, some 10 or 12 feet above winter level and has a strong current. The current in May is very inconsiderable in any portion of the Canal between T'sing-kiang lock and Sau-pá, the point where it meets the flood tide from the Yang-tsze, I should say never more than about ¾ mile per hour; and this only for about the 10 or 15 miles of its course immediately below T'sing-kiang-pu. So much of the water however, is parted with through sluices in the East bank, for purposes of irrigation, that the current getting weaker and weaker on its way South becomes almost nil at the point where the canal enters the lake about 6 miles North of Kaou-yeu. In the same way both the depth and breadth decline towards this point, it being here scarcely 10 yards broad and very shallow, whilst between Paou-ying and

* I am aware that this date is not considered correct; but it is derived from the information of a *number* of different persons resident in the neighbourhood, and as such only I give it, and do not vouch for its accuracy.

† In 1866 too the creek in the bed of the Yellow River (see May 11th) is said to have contained 10 feet of water for a few days during the floods.

T'sing-kiang it sometimes reaches a breadth of 150 yards and has everywhere abundance of water. Below Kaou-yeu and after communication with the Kaou-yang lake the Canal again becomes broader and deeper, and the current somewhat stronger, although here too the sluices are at work draining off the water.

Many of the gunboats mentioned May 12th were seen returning on the 15th there not being enough water for them in the Yeu-ho; thus practically illustrating the unimportant nature of that river at this time of year, they would go to Hai-chow by way of Sien-nu-miaou, &c.

Although on May 12th, I was informed that the summer rise in the Canal was due to its Hung-tsze feeder it will have been seen that from the subsequent examination of those parts, it was found to be caused by floods from *both* the Hong-tsze and the Chun-ho *simultaneously*.

ARTICLE VII.

ECLIPSES RECORDED IN CHINESE WORKS.

By A. WYLIE.

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
B. C. 2127	9	47		Much difference of opinion has existed as to the year.	A	4
					B	
776	10	28			C	1
720	2	6			,,	2
709	7	29		Total.	,,	,,
695	10				,,	3
676	3				,,	,,
669	6	8			,,	,,
668	12	60			,,	,,
664	9	7			,,	5
655	9	45			,,	,,
648	3	7			,,	,,
645	5				,,	6
626	2	60			,,	,,
612	6	38			,,	,,

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
B.C. 601	7	1		Total.	C	7
599	4	53			,,	,,
592	6	40			,,	,,
575	6	3			,,	8
574	12	54			,,	,,
559	2	32			,,	9
558	8	54			,,	,,
553	10	53			,,	,,
552	9	47			,,	,,
,,	10	17			,,	,,
550	2	10			,,	,,
549	7	1		Total.	,,	,,
,,	8				,,	,,
546	12	12			,,	,,
535	4	41			,,	,,
527	6	54			,,	10
525	6	11			,,	,,
521	7	19			,,	,,
520	12	10			,,	,,
518	5	32			,,	,,
511	12	48			,,	,,

B. C.	505	3	48				C	11
	498	11	3				,,	,,
	495	8	17				,,	,,
	481	5	57				,,	,,
	443						D	5
	435	6					Y	74
	410						,,	,,
	397						&	1
	392						,,	,,
	375						,,	,,
	369						,,	,,
	301						D	5
	248	4					Y	74
	247	4					D	5
	204	10	11	斗	20°	l. d.	E	27
	,,	11	40	虛	3°	l. d.	,,	,,
	198	6	32	張	13°	l. d. Total.	,,	,,
	188	1	38	危	13°		,,	,,
	,,	5	4	星		Last day but one of the month. Nearly total.	,,	,,
	186	6	23			l. d.	,,	,,
	181	1	26	室	9°	l. d. Total.	,,	,,
	178	11	40	女	1°	l. d.	,,	,,
	177	10	34	斗	23°	l. d.	,,	,,
	,,	11	4	虛	8°	l. d.	,,	,,
	160	4	53	井	13°	l. d. The 4th section of the same work gives the 3rd day of cycle.	,,	,,
	157	1	8				,,	,,

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
B.C. 154	2	19	胃 2°	l. d. The 5th section of this work gives 49th day of cycle.	E	27
153	10	35		l. d.	,,	5
150	11	27	虛 9°	l. d.	,,	,,
149	12	51		l. d.	,,	27
148	9	11		l. d.	,,	,,
147	9	35	尾 9°	l. d. Almost total.	,,	,,
146	10	55			,,	5
145	7			l. d. This is recorded by Gaubil.		
144	7	48	軫 7°	l. d.	E	27
143	7	42	翼 17°	Last day but one of the month.	,,	,,
139	2	23	奎 14°		,,	,,
138	9	13	尾 2°	l. d.	,,	,,
136	1	6			,,	,,
134	2	53		l. d.	,,	,,
,,	7	20	翼 8°	Last day but one of the month.	,,	,,
127	2	42	胃 3°	l. d.	,,	,,
,,	3	12		l. d.	,,	6
123	11	50		l. d.	,,	27
122	5	42	柳 6°	l. d.	,,	,,
112	4	14	井 23°	l. d.	,,	,,

B. C.	107	6	46			E	27
	96	1	42		l. d.	,,	,,
	93	10	51	斗 19°	l. d.	,,	,,
	89	8	58	亢斗 2°	l. d. Annular.	,,	,,
	84	11	29	斗 9°		,,	,,
	80	7	36	張 12°	l. d. Almost total. The 8th section of this work gives 12th day of cycle, and total.	,,	,,
	69	12	60	室 15°	l. d.	,,	,,
	57	12	22	女 10°		,,	,,
	54	4	38	畢 19°		,,	,,
	42	3	59	箕 8°		,,	,,
	40	6	15	張 7°	l. d.	,,	,,
	34	6	9		l. d. Annular.	,,	,,
	30	12	45			,,	,,
	28	4	36	井 6°	l. d. Annular.	,,	,,
	26	8	52	房	l. d.	,,	,,
	25	3	50	昴		,,	,,
	24	2	44	胃	l. d.	,,	,,
	16	9	54		l. d.	,,	,,
	15	2	22		l. d.	,,	,,
	14	1	16		l. d.	,,	,,
	13	7	8		l. d.	,,	,,
	12	1	36			,,	,,
	2	1	38	室 10°	Annular.	,,	,,
	1	3	29		l. d. The 11th section of the same work makes this the 4th month.	,,	,,
A. D.	1	5	54	井	l. d.	,,	,,

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 2	9	45		l. d. Total.	E	27
6	10	53			Y	74
14	3	9		l. d.	,,	,,
16	7	25		l. d.	,,	,,
25	1	7			A	285
26	1	1	危 8°		F	28
27	5	52	柳 14°	l. d.	,,	,,
28	5	52		l. d. Quoted in the commentary on F.	X	
29	9	3			Y	74
30	3			l. d. Quoted by Gaubil, from "L'histoire secrette des Han."		
,,	9	3	尾 8°	l. d.	F	28
31	3	60	畢 5°	l. d.		
33	7	34		Quoted in the commentary on F.	X	,,
35	6	50		Do. do.		
,,	12	48		Do. do.	,,	
40	3	38	昴 7°	l. d.	,,	
41	2	12	胃 9°	l. d.	F	28
46	5	32	柳 7°	l. d.	,,	,,
49	3	45	畢 15°	l. d.	,,	,,
50	2	25		Total. Quoted in the commentary on F.	X	,,

A. D.	53	2	54	壁 5°		F	28
	55	5	10	柳 5°	l. d.	,,	,,
	56	11	1	斗 20°	l. d.	,,	,,
	60	8	9	氐 2°	l. d.	,,	,,
	61	8	3		Between 1 and 3 p.m. Quoted in the commentary on F.	X	
	62	2	32		Invisible at the capital, but seen in the provinces. Com. on F.	,,	
	63	6	17		l. d. Not seen at Lo-yang the capital. Commentary on F.	,,	
	65	10	39	斗 11°	l. d. Total.	F	28
	,,	12			Quoted in the commentary on F.	X	
	70	8			Do. do.	,,	
	,,	10	41	尾 17°	l. d. The 2nd section of the same work gives the 29th day of cycle.	F	28
	73	5	55	柳 15°	l. d.	,,	,,
	75	11	41	斗 21°	l. d.	,,	,,
	80	2	17	壁 8°		,,	,,
	81	6	8	翼 6°	l. d.	,,	,,
	84	8	32	氐 4°	l. d.	,,	,,
	87	8	32		l. d.	,,	3
	90	2	19	奎 8°		,,	28
	91	8	32		l. d.	Y	74
	92	6	35	星 2°		F	28
	95	4	48	柳		,,	,,
	100	7	48	翼 8°		,,	,,
	103	4	1	井 22°	l. d.	,,	,,
	107	3	10	胃 2°	2nd day of the month.	,,	,,
	109	3			Quoted in the commentary on F. Section 28.	X	
	111	1	17	虛 8°		F	28

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 113	4	33	井 1°	l. d.	F	28
114	3	10			,,	5
,,	10	25	尾 10°		,,	28
115	9	19	心 4°	l. d.	,,	,,
116	3	48	奎 5°	2nd day of month. Y makes this the 2nd month.	,,	,,
117	2	42	奎 9°		,,	,,
118	8	33	翼 18°		,,	,,
119	12	35	女 11°	Nearly total; stars all visible.	,,	,,
120	7	22	張 15°		,,	,,
124	9	57	氐 15°	l. d.	,,	,,
125	3	55	胃 12°		,,	,,
127	7	11	翼 9°		,,	,,
135	In7	24	角 5°	& and Y both make this the 8th month.	,,	,,
138	12	35	女 11°		,,	,,
140	5	26	井 33°	l. d.	,,	,,
141	9	48	尾 11°	l. d.	,,	,,
147	1	48	室 3°		,,	,,
149	4	4	井 23°	l. d.	,,	,,
152	7	17	翼 4°	2nd day of month.	,,	,,

A. D.	154	9	4	角 5°		F	28
	157	In4	17	星 2°	l. d.	,,	,,
	158	5	11	柳 7°	l. d.	,,	,,
	165	1	33	室 13°	l. d.	,,	,,
	166	1	28	室 3°	The 7th section of this work gives the 48th day of the cycle.	,,	,,
	167	5	49	鬼 1°		,,	,,
	168	5	44			,,	,,
	,,	10	41		l. d.	,,	,,
	169	10	35		l. d. The 8th section of this work gives the 37th day of cycle.	,,	,,
	170	3	3		l. d.	,,	,,
	171	3	58			,,	,,
	173	12	10	虛 2°	l. d.	,,	,,
	177	10	50			,,	,,
	178	2	48			,,	,,
	,,	10	13	箕 4°	l. d.	,,	,,
	179	4	11			,,	,,
	181	9	27	角 6°		,,	,,
	186	5	29		l. d.	,,	,,
	189	4	43			,,	,,
	193	1	51	室 4°		,,	,,
	194	6	42		l. d.	,,	,,
	200	9	7			,,	,,
	201	3	4			,,	,,
	,,	10	20			,,	9
	208	10	20	尾 12°		,,	28
	210	2	42			,,	,,

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 211	6	27		l. d.	F	9
212	6	27		l. d.	,,	28
216	5	36			,,	,,
219	2	49		l. d.	,,	,,
220	2	44			,,	,,
221	6	5		l. d. 1 to 3 p.m. (U)	G	2
222	1	3			,,	,,
,,	11	57		l. d. 3 to 5 p.m. (U)	,,	,,
224	11	45		l. d.	,,	,,
231	11	35		l. d.	,,	,,
232	1	5			,,	3
233	In5	27			H	12
240	7	45			,,	,,
242	4	35			,,	,,
243	5	14		Total. (G)	,,	,,
244	4	53			,,	,,
245	4	49			,,	,,
,,	10	45			,,	,,
247	2	7			,,	,,
248	1	32			,,	,,
249	2	56			,,	,,

A. D.					
	259	7	25		H 12
	260	1	22		,, ,,
	261	5	44		,, ,,
	262	11	36		,, ,,
	266	7	43	l. d. & makes this the 6th month.	,, ,,
	,,	10	43		,, ,,
	271	10	14		,, ,,
	272	10	8	Y makes this the 44th day of cycle.	,, ,,
	273	4	5		,, ,,
	,,	7	34		,, ,,
	274	1	32		,, ,,
	,,	3	60		,, ,,
	275	7	21	l. d.	,, ,,
	277	1	13		,, ,,
	278	1	7		,, ,,
	283	3	38		,, ,,
	285	8	23		Y 74
	286	1	51		H 12
	287	1	45		,, ,,
	288	1	9		,, ,,
	,,	6	37		,, ,,
	299	11	1		,, ,,
	300	1	16	Y makes this the 28th day of cycle.	,, ,,
	,,	4	28		,, ,,
	301	In3	23		,, ,,
	306	1	25		,, ,,
	,,	7	22		,, ,,

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 306	12	19		Y makes this the 11th month.	H	12
307	11	45			,,	,,
308	1	13			,,	,,
312	2	49			,,	,,
316	6	54			,,	,,
,,	12	21			,,	,,
317	5	13			,,	,,
,,	11	13			,,	,,
318	4	14			,,	,,
325	11	30	斗	7 a.m.	,,	,,
327	5	21	井		,,	,,
331	3	59			,,	,,
334	10	32			,,	,,
335	10	32			,,	,,
341	2	1		Y makes this the 31st day of cycle.	,,	,,
342	1	32		Y makes this the 56th day of cycle.	,,	,,
346	4	46			,,	,,
351	1	34			,,	,,
352	1	28			,,	,,
356	10	30	尾		,,	,,

A. D.	360	8	38	角	Almost total. Y makes it total.	H 12
	362	3	51			,, ,,
	,,	12	55			,, ,,
	368	3	54			,, ,,
	370	7	10			,, ,,
	375	10	10			,, ,,
	376	11				& 21
	379	In	46			H 12
	381	6	37			,, ,,
	384	10	48			,, ,,
	392	5	4			,, ,,
	395	3	17			,, ,,
	400	6	17			,, ,,
	403	4	30			,, ,,
	407	7	35			,, ,,
	414	9	54			,, ,,
	415	7	48		l. d.	,, ,,
	417	1	11			,, ,,
	419	11	24			,, ,,
	424	1	30			J 4
	,,	2	16			O 1
	427	6	40			J 5
	428	11	32			K 151
	429	5	29			J 5
	,,	11	26		Stars were seen in the day time. (Y)	,, ,,
	435	1	56		P makes this the 32nd day of cycle.	K 151
	438	11	4			,, ,,

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 440	4	55			I	5
442	7	11		l. d. K makes this the 8th month.	,,	,,
445	6	25			K	151
446	6	20			I	5
449	4	33			K	151
,,	6	27			,,	,,
453	7	38			I	6
454	7	33			,,	,,
460	9	57			K	151
461	9	51			I	6
462	2	49			K	151
467	10	16		P makes this the 36th day of the cycle.	,,	,,
468	4	13			,,	,,
,,	10	10			I	8
469	4			Quoted by Gaubil from the Wei History.		
,,	10	4		K makes this the 34th day of cycle.	I	8
471	12	40			K	151
473	12	40			I	9
474	1	10			K	151
477	10	48			,,	,,
478	2	22		l. d. O makes this the 3rd month and 26th day of cycle.	,,	,,

A. D.							
	478	9	42			I	10
	479	3	40			,,	,,
	480	9	31			,,	,,
	481	7	57		⊙ makes this the 56th day of cycle.	K	151
	483	12	42			,,	,,
	488	2	12		8 digits. P makes this the 48th day of cycle.	,,	,,
	490	2	6		1 to 3 p.m. 1 dig. Intercepted by clouds. P makes this the 2nd month.	,,	,,
	491	1	60		l. d.	,,	,,
	493	6	17			,,	,,
	494	5	11			,,	,,
	,,	11	9			⊙	5
	496	9	27		l. d.	K	151
	500	1	38			,,	,,
	,,	7	36			,,	,,
	501	1	33			⊙	5
	,,	7	30			K	151
	502	7	54			,,	,,
	506	3	3			⊙	6
	508	8	49			K	151
	509	8	43			,,	,,
	511	12	59	牛 4°		,,	,,
	512	5	56		l. d.	,,	,,
	513	5	51		Invisible at Lo-yang, the metropolis, but seen at 恒州 Han chow.	,,	,,
	516	3	5		Total. (⊙)	,,	,,
	519	1	18			,,	,,
	520	1	12		⊙ makes this the 13th day of the cycle.	,,	,,
	521	5	34		Reported visible at 夏州 Hea chow.	,,	,,

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 522	5	29		Total. (O)	K	151
„	11	26			„	„
523	11	20			„	„
525	10	46		Sun rose eclipsed 7 digits on the S. W. limb.	„	„
529	10	22			„	„
531	6	36		Sun eclipsed on the S. W. limb. Reported from 定州 Ting chow and 相州 Seang chow.	Y	74
„	10	58		Sun eclipsed on the S. W. limb.	„	„
532	10	58		This and the preceding are probably different records of same eclipse.	„	„
533	4	56		Beginning of eclipse, direct south.	„	„
534	4	50			K	151
538	1	38		P makes this the 58th day of cycle. 11 a.m. to 1 p.m. (U)	„	„
„	6	38			„	„
540	In5	14			O	7
547	1	36			K	151
548	7	27		Beginning of eclipse, S. W. 3 to 5 p.m. (U)	„	„
559	5	53		Beginning of eclipse, N. W.	„	„
561	4	13			J	2
„	10	11			M	5
562	9	5			„	„
563	3	2			M	5

A. D.	564	2	27				M	5
	,,	8	24		Y makes this the 44th day of the cycle.		,,	,,
	565	7	18				,,	,,
	566	1	16				,,	,,
	567	1	10				,,	,,
	,,	11	35				,,	,,
	568	11	29				,,	,,
	570	10	18				,,	,,
	571	4	15				,,	,,
	572	3	40				,,	,,
	,,	9	37				,,	,,
	574	2	29				J	5
	575	2	23				M	6
	,,	12	48				,,	,,
	576	6	45		5 to 7 a.m. (U)		L	8
	577	11	36		l. d.		M	6
	580	10	51				Y	74
	583	2	6				N	1
	,,	7	4		l. d. Z makes this the 1st day of 8th month.		,,	,,
	584	1	1				,,	,,
	585	1	55				J	6
	,,	6		星 6°	l. d. 6 digits on N.W. limb. Begin. 0.30 p.m. Mid. 1.15 p.m. End 2.15 p.m.		N	17
	586	10	14	斗 9°	l. d. 10 digits on W. limb. Begin. 7.30 a.m. Mid. 8.30 a.m. End 9.45 a.m.		,,	,,
	587	5	12				,,	1
	591	2	18		l. d.		,,	,,

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 592	7	9		l. d.	N	1
593	7	5		l. d.	,,	,,
594	7			About midday the sun was eclipsed 8 digits, when it disappeared among the clouds.	,,	17
601	2	52			,,	1
616	5	23		Total.	,,	,,
618	10	9	氐 5°		Q	32
620	1			A calculation quoted by Gaubil.		
,,	8			Do. do.		
621	8	23	翼 4°		Q	32
623	12	39	斗 19°		,,	,,
626	10	53	氐 7°		,,	,,
627	In3	50	胃 9°		,,	,,
,,	9	47	亢 5°		,,	,,
628	3	45	婁 11°		,,	,,
629	8	6	翼 5°		,,	,,
630	In1	4	室 4°		,,	,,
,,	7	1	張 14°		,,	,,
632	1	52	虛 9°		,,	,,
634	5	8	參 7°		,,	,,

A. D.	635	In4	3	畢	13°		Q	32
	637	3	23	婁	2°		,,	,,
	638	In2	17	奎	9°		,,	,,
	639	8	8	翼	14°		,,	,,
	643	6	16	井	16°		,,	,,
	644	10	38	房	3°		,,	,,
	646	In3	30	胃	9°		,,	,,
	648	8	46	翼	5°		,,	,,
	660	6	7	柳	5°		,,	,,
	661	4	31			l. d.	,,	3
	,,	5	1	井	27°	l. d.	,,	32
	665	In3	10	胃	9°		,,	,,
	667	8	46	翼	6°		,,	,,
	669	6	45	井	29°		,,	,,
	670	6	39	井	18°		,,	,,
	671	11	31	箕	9°		,,	,,
	672	11	25	尾	10°		,,	,,
	674	3	48	斗	13°		,,	,,
	680	11	9	尾	16°	10 a.m. (U)	,,	,,
	681	10	3	尾	4°	9 to 10 a.m. (U)	,,	,,
	682	4	1	畢	5°		,,	,,
	,,	10	57	房	3°		,,	,,
	686	2	8	室	15°		,,	,,
	688	6	24	井	27°		,,	,,
	691	4	39	昴	7°	5.30 a.m. (U)	,,	,,

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 692	4	33	胃 11°		Q	32
693	9	24	角 10°		,,	,,
694	9	19	軫 18°		,,	,,
695	2	22	室 5°		,,	,,
700	5	46	畢 15°	3 to 4 p.m. (U)	,,	,,
702	9	2	角	Almost total. 3.45 p.m. (U)	,,	,,
703	3	59	翼 9°		,,	,,
,,	9	27	鬼 7°		,,	,,
707	6	4	井 28°	Noon. (U)	,,	,,
,,	12	2	斗 21°		,,	,,
712	9	4	角 10°		,,	,,
715	7	17	張 4°		,,	,,
719	5	26	畢 15°		,,	,,
721	9	6	軫 15°	Noon. (U)	,,	,,
724	In12	53	虛		,,	,,
729	10	55	氐 9°	Annular.	,,	,,
732	2	11	室 10°		,,	,,
,,	8	8	翼 7°		,,	,,
733	7	2	張 15°		,,	,,

A. D.	734	12	37	斗	23°		Q 32
	735	In11	19	斗	11°		,, ,,
	737	9	43	亢	9°		,, ,,5
	738	9	33				,, 32
	740	3	24	畢	3°		,, ,,
	742	7	40	張	5°		,, ,,
	746	5	49	畢	16°		,, ,,
	754	6	2	井	19°	Almost total.	,, ,,
	756	10	18	氐	10°	Total.	,, ,,
	761	7	20	張	4°	Total. The large stars were all visible.	,, ,,
	768	3	42	奎	11°		,, ,,
	775	10	58	氐	11°		,, ,,
	779	7	5	張	4°		,, ,,
	,,	12	3	危	12°	l. d.	,, ,,
	786	8	18	軫	8°		,, ,,7
	787	8	18				,, 32
	789	1	41	室	6°		,, ,,
	792	11	49	尾	6°		,, ,,
	796	8	56	翼	18°		,, ,,
	801	5	59	井	10°		,, ,,
	808	7	18	星	3°		,, ,,
	815	8	36	翼	18°		,, ,,
	818	6	50	鬼	1°		,, ,,
	822	4	58	胃	13°		,, ,,
	823	9	49	角	12°		,, ,,

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 834	2	19	奎 1°		Q	32
836	1	38	虛 3°		,,	,,
843	2	57	壁 1°		,,	,,
844	2	51	室 7°		,,	,,
845	7	43	張 7°		,,	,,
846	12	5	斗 14°		,,	,,
848	5	56	參 9°		,,	,,
854	1	23	危 1°		,,	,,
863	7	28	張 17°		,,	,,
876	9	12	軫 14°		,,	,,
877	4	9	畢 3°		,,	,,
879	4	57	胃 8°	Total.	,,	,,
888	3	35	胃 1°		,,	,,
904	10	28	心 2°		,,	,,
906	4	20	胃 12°		,,	,,
909	2				,,	,,
911	1	23			&	54
921	*6*	*52*			R	59
923	*10*	*8*			S	2
					R	59

A. D.					
925	4	60	R	59	
926	8	22	,,	,,	
927	8	16	,,	,,	
928	2	14	,,	,,	
930	6	30	,,	,,	
931	11	21	,,	,,	
937	1	52	,,	,,	
938	1	45	A	283	
939	7	37	R	59	
940	11	14	,,	,,	
942	4	51	A	283	
943	4	45	R	59	
944	3	25	,,	,,	
,,	9	7	,,	,,	
945	8	1	,,	,,	
946	2	59	,,	,,	
948	6	15	,,	,,	
949	6	10	,,	,,	
950	11	1	,,	,,	
952	4	23	,,	,,	
955	2	37	S	6	
956	12	10	R	59	
958	5		&	,,	
960	5	36	A	283	
961	4	30	S	6	
965	2	39		7	
967	6	55	A	283	

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 968	12	46			A	283
970	4	8			,,	,,
971	10	60			,,	,,
972	9	54			,,	,,
974	2	17			,,	,,
975	7	8			,,	,,
977	11	24			,,	,,
979	9	17			D	86
981	9	32			A	283
982	3	30			,,	,,
,,	11	55			D	86
983	2	25			A	283
985	12	37			,,	,,
986	6	35			,,	,,
991	In2	8			S	13
992	2	2			,,	,,
993	2	56			A	283
,,	8	53			D	87
994	7	48			S	13
,,	12	15		Obscured by clouds at Hang-chow. (D)	,,	,,
997	5	1			,,	,,

A. D. 998	5	55		A	283
,,	10	23		,,	,,
999	9	17		,,	,,
1000	3	15		,,	,,
1002	7	31		S	14
1004	12	17	Total.	,,	,,
1006	5	39	Obscured by clouds at Hang-chow.	A	283
1007	5	33		,,	,,
,,	10	31	Obscured by clouds at Hang-chow.	,,	,,
1009	3	53	Obscured by rain at Hang-chow.	,,	,,
1012	8	33		,,	,,
1013	12	55		,,	,,
1014	12	50	This occurred in the night time. It was predicted for daylight.	,,	,,
1015	6	46		,,	,,
1019	3	55		,,	,,
1020	7	47		S	16
1021	7	11	It was calculated for total; but only extended to 4 digits.	A	283
1022	7	1	Almost total.	,,	,,
1024	5	24	This was not observed according to prediction.	,,	,,
1026	10	11		,,	,,
1028	3	33		,,	,,
1029	8	24		,,	,,
1033	6	31		,,	,,
1036	4	46	$2\frac{1}{2}$ digits. It occurred before sunrise, and was invisible at the capital.	,,	,,
1038	1	53	6 digits. Ended about $\frac{1}{4}$ past 3 p.m.	,,	,,
1040	1	53		,,	,,
1042	6	9	5 digits. About 6.30 p.m. it became invisible in the haze.	,,	,,

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 1043	5	4			**A**	283
1044	11	45		This occurred at night. It was predicted for daylight.	,,	,,
1045	4	24		Obscured by clouds at Hang-chow.	,,	,,
1046	3	18		4½ digits. Ended about 3.45 p.m.	,,	,,
1049	1	31		1 digit. (**A**) Noon. (U)	S	20
1052	11	39		2 digits barely. Ended about 2.15 p.m.	**A**	283
1053	10	33		About 0.15 p.m. Eclipsed 4½ digits. (**A**) 1.15 p.m. (U)	S	20
1054	4	31		Eclipsed more than 9 digits, on the S. W. limb. Middle about 4.15 p.m. Rain and thunder at Hang-chow.	**A**	283
1056	8	47		2 digits.	,,	,,
1058	8	36		3½ digits.	,,	,,
1059	1	33		Eclipsed more than 3 digits. Ended about 1.45 p.m.	,,	,,
1061	6	49		At 1 p.m. it was eclipsed 4 digits at Hang-chow when it disappeared among the clouds.	S	21
1066	9	49		1.30 p.m. (U)	,,	22
1068	1	11			,,	,,
1069	7	2		7.45 a.m. (U)	,,	,,
1073	4	11		Obscured by clouds.	**D**	89
1075	8	27		Obscured by clouds. (**D**)	S	23
1078	6	40			**D**	89
1080	11	26		Obscured by clouds. (**D**) 10.30 a.m. (U)	S	24

A. D. 1081	11	20		**D**	89
1082	4	49	Obscured by clouds.	,,	,,
1083	9	40		S	24
1087	7	47	Obscured by clouds.	**A**	283
1091	5	56		S	25
1094	3	9	2.30 p.m. (U)	,,	,,
1095	2		Recorded by Gaubil, as having occurred at night.		
1096	2	4		**A**	283
1097	6	20		**D**	90
1099	10	51	Total.	,,	,,
1100	4	34		S	26
1101	4	28		**D**	90
1106	7	17	This was predicted but not seen.	,,	,,
,,	12		Recorded by Gaubil, as predicted, but not seen.		
1107	11	49	1.30 to 3. p.m. (U)	**D**	91
1108	5	47		,,	,,
1110	9	3		,,	,,
1113	3	49		,,	,,
1115	7	5		,,	,,
1118	5	19		,,	,,
1119	4	13		,,	,,
1120	10	5		,,	,,
1122	2	27		S	29
1123	8	18	Obscured by clouds. (**D**)	T	2
1129	9	43		,,	3
1135	1	43	**D** makes this the 42nd day of cycle.	,,	,,
1137	2	30		**D**	93

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 1140	7	40			T	4
1143	12	20			,,	,,
1144	6	18			,,	,,
1145	6	12			,,	,,
1147	10	28			D	94
1148	4	25			T	4
1149	3	20			,,	,,
1154	5	50			,,	5
1155	5	44		Obscured by clouds. (D)	,,	,,
1158	3	58		Obscured by clouds.	,,	,,
1160	7	14			D	94
,,	8	43			T	5
1161	1	11			,,	,,
1162	1	5		3. to 4. p.m. (U)	,,	6
1163	6	57			,,	,,
1164	6	51			,,	,,
1167	4	5			,,	,,
1169	8	21		Obscured by rain.	,,	,,
1173	5	29			,,	7
1174	11	21			,,	,,
1176	3	43		Obscured by clouds. (D)	,,	,,

A. D. 1177	9	34	Obscured by clouds. (**D**)	T	7
1183	11	59	10.30 a.m. (U)	,,	8
1188	8	1		,,	,,
1189	2	58		,,	9
1195	3	23	11.30 a.m. (U)	,,	10
1198	1	36	Obscured by clouds.	,,	20
1199	1	30	Obscured by clouds.	**A**	283
1200	6	22		**D**	96
,,	11	50		T	11
1202	5	41		,,	,,
1203	4	36		**D**	96
1206	2	49	11.15 a.m. (U)	T	20
1209	12	58		,,	,,
1210	6	54		**D**	96
,,	12	58		T	13
1211	11	22		**D**	96
1214	9	59	Large stars all visible.	T	20
1216	2	21	3. p.m. (U)	,,	14
,,	In7	19		,,	,,
1217	7	13		,,	15
1218	7	7		,,	,,
1221	5	21		,,	16
1223	9	37		,,	,,
1227	6	45		**D**	97
1228	6	39		,,	,,
,,	12	37		T	17
1233	9	39		**D**	97

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
					D	97
A. D. 1235	2	1		Calculation, not verified.	,,	,,
1237	12	15			,,	,,
1242	9	17			,,	,,
1243	3	14		9.30 a.m. (U)	,,	,,
1245	7	30			,,	,,
1246	1	28			,,	,,
1249	4	39			,,	,,
1252	2	52			,,	,,
1253	2	46			,,	,,
1260	3	5		2.30 p.m. (U)	,,	,,
1261	3	59			U	48
1265	1	8			,,	6
1267	5	24			,,	,,
1268	10	15			,,	,,
1270	3	37			,,	7
1271	8	29			,,	,,
1272	8	23			,,	8
1275	6	37			,,	9
1277	10	53		Noon. (U)	,,	12
1282	6	26			,,	,,
,,	7	55			,,	,,

A. D. 1287	10	55				
1289	8	17				
1290	8	8				
1292	1	31				
1294	6	17				
1297	4	30				
1299	8	46				
1300	2	44				
1302	6	60				
1303	In5	55				
1304	5	50				
1312	6	2				
1315	4	15				
1318	2	30				
1319	2	24				
1320	1	18				
1321	6	40				
1322	11	31				
1327	9	33				
1329	7	53				
1331	8	41				
,,	11	9				
1334	4	55				
1336	8	11				
1337	2	9				
1338	8	60				
1342	8	37				

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SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 1342	10	36			U	40
1343	4	33			,,	41
1344	9	24			,,	,,
1345	9	19			,,	,,
1346	2	47			,,	,,
1347	1	41			,,	,,
1348	7	33			,,	,,
1349	11	55			,,	42
1350	11	49			,,	,,
1351	5	46			,,	,,
1352	4	40			,,	,,
1353	9	2			,,	43
1354	3	40		The 48th section makes this the 60th day of cycle.	,,	,,
1357	*1*	*13*			,,	45
1358	*6*	*5*			,,	48
,,	11			This is recorded by Gaubil.	,,	
,,	12	2			U	45
1360	*5*	*24*			,,	,,
1361	*4*	*18*			,,	48
1364	*4*	*31*		Total.	E	10
,,	8	29			U	46

A. D. 1366	7	18		U	47
1367	6	43		,,	,,
,,	12	40		,,	,,
1368	5	7		B	216
1369	5	31		V	2
1371	9	47		,,	,,
1373	3	40		,,	,,
1374	2	34		,,	,,
1375	7	56		,,	,,
1376	7	50		,,	,,
1377	12	42		,,	,,
1379	12	42		B	216
1381	10	49		V	2
1383	8	9		,,	3
1386	12	20		,,	,,
1388	5	11		,,	,,
1389	9	3		,,	,,
1390	9	27		,,	,,
1391	3	25		,,	,,
1393	7	41		,,	,,
1397	5	49		,,	,,
1399	3	3		,,	4
1406	6	56	Obscured by clouds.	,,	6
1407	10	18		B	216
1408	4	16		,,	,,
,,	10	12		,,	,,
1409	9	7		V	6

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 1413	1	18			V	6
1414	1	13			**B**	216
„	6	3			„	„
„	11	31			„	„
1415	5	34			V	7
1416	5	29			**B**	216
1417	4	54			„	„
„	10	20			„	„
1420	8	34			V	7
1421	8	28			„	„
1422	1	56			„	„
1423	6	47			„	„
1425	10	3			**B**	216
1430	8	6		Obscured by rain.	V	9
1432	1	58			„	„
1435	11	5			„	10
1439	8	13			**B**	216
1440	1	41			„	„
1441	1	36		Not observed.	V	10
„	7	33			**B**	216
1442	6	27			„	„

A. D. 1443	6	21		**B**	216
„	11	49		„	„
1444	10	43		V	10
1445	4	41		„	„
1446	4			**B**	216
1447	8	57		V	10
1448	2			**B**	216
1451	6	5	Not observed.	V	11
1452	11	56		„	„
1454	4	19		„	„
1455	4	13		„	„
1458	2			**B**	216
1460	7	12		V	12
1461	11	34		„	„
1463	5	46	**B** makes this the 26th day of cycle.	„	„
1464	4	20	Not observed.	„	13
1467	2	34		„	„
1468	2	29		**B**	216
„	12	24		„	„
1469	6	50		V	13
1470	6	45		„	„
1473	4	58		„	„
1474	9	50		„	„
1475	8	44		**B**	216
„	9	44		V	13
1476	2	12		„	14
1482	5	42		**B**	216

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 1484	9	22			V	14
1485	8	16			„	„
1486	2	34			B	216
1488	6	30			V	15
1489	10	21			B	216
„	12	21			V	15
1494	3	16			B	216
1495	2	52			V	15
„	3	22			B	216
„	8					
1498	Int1	59			„	„
1500	5	51			V	15
1501	9	13			„	„
1502	5	7			„	„
„	9	7			B	216
1506	3	12			V	15
1507	1	12		Total.	B	216
1514	8	28		8 dig. 67 m.	V	16
1515	12	50			„	„
1517	6	42			„	„
1518	5	36			„	„
					„	„

A. D. 1520	3	50		**B**	216
1521	3	50		V	16
1525	12	52		**B**	216
1526	5	20	**H** gives this the 14th day of cycle.	,,	,,
1527	5	14	Total.	V	17
1528	5	8		**B**	216
1529	10	60		V	17
,,	12	60		**B**	216
1540	3	30	Not visible to the imperial astronomers.	,,	,,
1542	7	46		V	17
1543	1	43		,,	18
1545	5	59		,,	,,
1548	3			**B**	216
1549	3	8		V	18
1553	1	15	Obscured by clouds.	,,	,,
1555	11	29		,,	,,
1556	10	23		,,	,,
1561	2	28	Not visible.	,,	,,
,,	7	26		,,	,,
1564	5	39		,,	,,
1566	4	59		,,	,,
1569	1			**B**	216
1570	1	42		V	19
1572	6	52		,,	20
1575	4	6	Between 1 & 3 p.m. the stars shone bright. After 3 it became light. (**B**)	,,	,,
1577	In 8	22	Obscured by clouds.	,,	,,
1580	2	8		,,	,,

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	Longitude.	Portion eclipsed.	Beginning.	Middle.	End.		Book.	Section.
A. D. 1582	6	24							V	20
1583	11	16							,,	,,
1587	9	24		Obscured by clouds.					,,	,,
1589	1	46							,,	,,
1590	7	37							,,	,,
1593	10			2 digits.					B	216
1594	4	46							V	20
1596	In8	2							,,	,,
1603	4	24							,,	21
1604	4	18							,,	,,
1607	2			Not visible.	Recorded by Guabil.					
1610	11	39							V	21
1612	5	31							,,	,,
1615	3	44							,,	,,
1616	3	8							,,	,,
1617	7	60							,,	,,
1621	4	9							,,	22
1626	7	8		Obscured by clouds.					,,	,,
1629	5	22							,,	23
1631	10	38							,,	,,
1634	3	24							,,	,,

A. D. 1637	1	38							V	23
1641	10	40							,,	24
1643	2	2							,,	,,
1644	8	53	張 8° 18′	2 dig. 46 m.	11.1 a.m.	0.17 p.m.	1.29 p.m.		C	263
1645	12	16		Obscured by clouds. 7. to 9. a.m.					,,	,,
1648	5	2	觜亢 11° 7′	9 dig. 12 m.	5.33 a.m.	6.52 a.m.	8. a.m.		,,	,,
1650	11	18	觜亢 2° 15′	7 ,, 42 ,,	10.36 ,,	0.1 p.m.	1.35 p.m.		,,	,,
1657	5	40	觜亢 2° 12′	6 ,, 37 ,,	4.19 ,,	5.9 a.m.	6.4 a.m.		,,	,,
1658	5	34	畢 6° 57′	4 ,, 25 ,,	8.54 ,,	10.11 ,,	11.39 ,,		,,	,,
1664	12	55	斗井 21° 20′	8 ,, 54 ,,	3.21 p.m.	4.37 p.m.	5.46 p.m.		,,	,,
1666	6	47	井 9° 45′	9 ,, 47 ,,	3.29 ,,	4.41 ,,	5.44 ,,		,,	,,
1669	4	60	井 11°	5 ,, 29 ,,	1.8 ,,	2.27 ,,	3.43 ,,		,,	,,
1671	8	16	張 9° 29′	1 ,, 59 ,,	4.24 ,,	5.7 ,,	5.44 ,,		,,	,,
1676	5	19		Under 1 dig.		6.15 ,,	7.10 ,,		,,	,,
1681	8	18	翼 0° 23′	3 dig. 49 m.	8.22 a.m.	9.22 a.m.	10.35 a.m.		,,	,,
1685	11	54	心 1° 22′	2 ,, 19 ,,	3.8 p.m.	3.58 p.m.	4.44 p.m.		,,	,,
1688	4	40	井 10° 59′	9 ,, 49 ,,	8.8 a.m.	9.19 a.m.	10.39 a.m.		,,	,,
1690	8	56	張 9° 20′	2 ,, 44 ,,	6.50 ,,	7.35 ,,	8.26 ,,		,,	,,
1691	2	54	危 10° 52′	3 ,, 21 ,,	0.2 p.m.	1.20 p.m.	2.28 p.m.		,,	,,
1692	1	48	虛 9° 34′	5 ,, 17 ,,	11.48 a.m.	1.14 ,,	2.47 ,,		,,	,,
1695	11	56	尾 3° 26′	8 ,, 33 ,,	3.43 p.m.	4.51 ,,	5.57 ,,		,,	,,
1697	In3	18	井 1° 57′	10 ,, 22 ,,	7.53 a.m.	9.7 a.m.	10.22 a.m.		,,	,,
1704	11	34	心 1° 26′	4 ,, 37 ,,	0.56 p.m.	2.15 p.m.	3.22 p.m.		,,	,,
1706	4	25	胃 8° 18′	6 ,, 23 ,,	6.21 ,,	7.13 ,,	8.3 ,,		,,	,,
1708	8	41	翼 1° 42′	5 ,, 19 ,,	4.52 ,,	5.48 ,,	6.39 ,,		,,	,,

SOLAR ECLIPSES.

Year.	Month.	Day of cycle.	Longitude.	Portion eclipsed.	Beginning.	Middle.	End.		Book.	Section.
A. D. 1709	8	36	張 9° 26′	4 dig. 54 m.	6.8 a.m.	6.59 a.m.	7.59 a.m.		C	263
1712	6	50	井 10° 32′	5 „ 41 „	3.40 „	4.31 „	5.25 „		„	„
1715	4	3	婁 12° 19′	6 „ 12 „	6.11 p.m.	7.2 p.m.	7.51 p.m.		„	„
1719	1	11	房 0° 45′	0 „ 7 „	3.7 „	4.20 „	5.29 „		„	„
1720	7	3	柳 5° 16′	7 „ 2 „	10.34 a.m.	0.12 „	1.45 „		„	„
1721	In6	57	井 29° 42′	4 „ 2 „	5.7 p.m.	5.59 „	6.47 „		„	„
1730	6	35	井 20° 42′	9 „ 22 „	11.1 a.m.	0.46 „	2.30 „		„	„
1731	12	27	斗 0° 26′	9 „ 11 „	6.53 „	7.25 a.m. sun rose eclipsed 6 dig. 40 m.				
						7.49 a.m.	9.5 a.m.		„	„
1735	9	34	角 2° 5′	8 „ 21 „	7.47 „	8.59 „	10.18 „		„	„
1742	5	56	畢 7° 17′	7 „ 4 „	6.41 „	7.37 „	8.38 „		„	„
1745	3	10	壁 6° 49′	1 „ 10 „	10.57 „	11.46 „	0.30 p.m.		„	„
1746	3	4	室 11° 23′	6 „ 57 „	9.35 „	11.5 „	0.40 „		„	„
1747	7	26	柳 6° 33′	2 „ 21 „	4.59 p.m.	5.40 p.m.	6.18 „		„	„
1751	5	34	昴 7° 37′	4 „ 41 „	6.49 a.m.	7.39 a.m.	8.33 a.m.		„	„
1758	12	50	斗 1° 51′	8 „ 51 „	3.5 p.m.	4.20 p.m.	4.36 p.m. sun set eclipsed 7 dig. 23 m.		„	„
1760	5	41	參 1° 17′	9 „ 42 „	4.26 „	5.27 p.m.	6.23 p.m.		„	„
1762	9	57	角 3° 26′	5 „ 40 „	4.50 „	5.28 p.m. sun set eclipsed 6 dig. 40 m.			„	„

A. D. 1763	9	52	軫 6° 1′	7 dig. 7 m.	6.9 a.m.	6.18 a.m.	sun rose eclipsed 1 dig. 34 m.	C	263
						7.2 a.m.	8. a.m.		
1769	5	19	畢 8° 38′	3 „ 35 „	5.5 p.m.	5.47 p.m.	6.28 p.m.	„	„
1770	5	14	鬼 7° 34′	3 „ 53 „	7.35 a.m.	8.26 a.m.	9.22 a.m.	„	„
1773	3	27	室 12° 37′	4 „ 12 „	1.18 p.m.	2.40 p.m.	3.54 p.m.	„	„
1774	8	19	張 10° 53′	3 „ 51 „	7.14 a.m.	8.12 a.m.	9.18 a.m.	„	„
1775	8	13	張 0° 6′	4 „ 33 „	11.21 „	0.52 p.m.	2.17 p.m.	„	„
„	12	41	斗 23° 43′	1 „ 47 „	9.36 „	10.20 a.m.	11.6 a.m.	„	„
1784	7	51	柳 16° 21′	1 „ 55 „	5.32 „	6.14 „	6.59 „	„	„
1785	7	45	柳 5° 34′	4 „ 17 „	6.42 „	7.43 „	8.53 „	„	„

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
B. C. 436				This is recorded by Gaubil, in Souciet's "Observations Mathematiques, &c." Tome 3, p. 367.		
209				This is quoted in the 太平御覽 *T'aé pîng yú làn.* Book 4.	W	
141	10				D	11
A. D. 62	7				F	12
89	In7				,,	,,
100	1				,,	,,
146	12				,,	,,
157	11			This is recorded by Gaubil.	,,	,,
,,	12	59			F	28
165	1	18			,,	,,
175	12				,,	12
179	3				,,	,,
221	7			This is recorded by Gaubil.	,,	,,
307					H	
311	3	9		This is recorded as twice total the same night, in the 3rd and 4th watches.	,,	12
434	*7*	*13*	室 15°	Begin. 4th watch 2 chang. Total, 4th watch 4 chang.	I	12
436	*12*	*6*	鬼 4°	Begin. 9. to 11. p.m. Total, 1st watch 3 chang.	,,	,,
437	*5*		斗 26°	Total. 4th watch.	,,	13

A. D.	437	12	14	井	28°	Begin. 2 watch 4 chang. Total, 3 watch 1 chang.	I	12
	438	5		斗	16°		,,	,,
	440	9		鼻	1° 50′	Begin. 2 watch 1 chang. In the 3rd watch eclipsed 12 digits.	,,	,,
	451	8		奎	11°	4th watch.	,,	13
	459	9		胃	end	Total, 2nd watch.	,,	,,
	467	10	30	參			K	151
	478	9	57	鼻		Seen at intervals between dark clouds.	,,	,,
	480	2	19				,,	,,
	482	1	8				,,	,,
	,,	7	4				,,	,,
	484	5	24	斗		Total.	,,	,,
	485	11	15				,,	,,
	487	9	35	胃		Seen at intervals between dark clouds.	,,	,,
	488	9				Total.	,,	,,
	489	2	26	角		7 digits.	,,	,,
	,,	8	23			A little cloudy.	,,	,,
	491	1	46	張			,,	,,
	,,	12	28			Total.	,,	,,
	492	12	34	柳			,,	,,
	494	4	57	斗			,,	,,
	496	10	43	畢			,,	,,
	498	2	14	角			,,	,,
	499	2	59	軫			,,	,,
	500	1	53	翼		3 digits.	,,	,,
	503	5	4	斗		Moon rose eclipsed 12 digits.	,,	,,

LUNAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 505	9	20	昴氐	10 digits.	K	151
506	3	17	翼	Total.	,,	,,
509	1	31	張	12 digits.	,,	,,
510	1	25	張危		,,	,,
,,	In	22			,,	,,
,,	12	19	張		,,	,,
513	4	36	箕	Moon rose eclipsed 12 digits, and gradually became total.	,,	,,
,,	10	33	參	Total.	,,	,,
514	4	30	尾	14 digits. Moon rose eclipsed.	,,	,,
515	8	46	奎	8 digits.	,,	,,
516	3	44	軫		,,	,,
,,	8	44	柳	Total.	,,	,,
,,	12	57		10 digits.	,,	,,
522	12	51			,,	,,
523	5	44			,,	,,
,,	11	46	井		,,	,,
525	9	54			,,	,,
530	3	1	參		,,	,,
,,	5	21		U makes this the 27th day of cycle, between 11. p.m. and 1. a.m.	,,	,,

A. D.	531	5	21	Total.	K	151
	532	4	15 箕參九		,,	,,
	534	10	13		,,	,,
	535	3	35		,,	,,
	536	2	24		,,	,,
	538	6	40		,,	,,
	539	10	31		,,	,,
	541	4	29		,,	,,
	543	3	43	U makes this the 42nd day of cycle, 3 watch 3 chang.	,,	,,
	549	11	4		,,	,,
	570	9	57	東 Total. The moon did not appear after its emersion.	M	5
	577	1	13		A	285
	584	12	40	鬼 3° 10 digits. Begin. N.E. 1 watch 1 chow, Mid. 1 watch 4 chow, End. 2 watch 1 chow.	N	17
	586	6		Begin. E. obscured by clouds. Reaching S.E. the moon was seen through the clouds $\frac{2}{3}$ eclipsed; when clouds from the N.E. limb again covered it. Towards the S. point it gradually decreased; and when seen through the clouds beyond the S. point, the eclipse was over.		
	590	3	40	氐 7° Moon rose half eclipsed on the E., at E.S.E. it was about $\frac{2}{3}$ eclipsed; and then decreased to S.S.E.	,,	,,
	,,	9	37	胃 4° 12 digits on S. limb. Begin. 0.30 p.m. Mid. 2. p.m. End. 3.23 p.m.	,,	,,
	592	7	56	室 7° 11 digits on N.W. limb. Begin. 1 watch 3 ch.	,,	,,
	593	7		8 digits on N.E. limb, was eclipsed at 5 watch 1 ch. when it disappeared among the clouds.	,,	,,

LUNAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 595	11	7	井 17°	11 digits on the N.W. limb. Begin. S.E. 1 watch 4 ch. Mid. S.S.E. 2 watch 3 ch. End. S. 3 watch 1 ch.	N	17
596	11	2	井 17°	3 watch 1 chow the moon was seen through the clouds, on the meridian, eclipsed 3 digits on the E. limb. At the 4th watch it was total, and was off on the S.E. limb. At 4 watch 3 ch. it ended on the S.W. limb. U makes this the 1st day of cycle.	N	17
618	9	54			Z	42
619	In2	16			,,	,,
621	12	4			,,	,,
623	6	57			,,	,,
,,	12	54			,,	,,
624	11	52			,,	,,
625	4	52			,,	,,
626	10	7			,,	,,
628	2	29			,,	,,
629	2	24			,,	,,
630	7	15			,,	,,
632	6	34			,,	,,
,,	11	32			,,	,,
633	5	28			,,	,,

| A. D. | | |

LUNAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.	Book.	Section.
A. D. 673	4	7		Z	42
675	8	23		,,	,,
676	2	21		,,	,,
677	7	12		,,	,,
680	12	34		,,	,,
,,	3	45		,,	,,
683	9	37		,,	,,
684	2	54		,,	,,
,,	8	31		,,	,,
686	7	50		,,	,,
687	10	42		,,	,,
688	6	18		,,	,,
689	10	1		,,	,,
690	4	58		,,	,,
691	10	22		,,	,,
693	2	12		,,	,,
695	7	58		,,	,,
697	6	22		,,	,,
699	1	8		,,	,,
700	1	3		,,	,,

| A. D. | | |

LUNAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 910	12	7			A	285
925	3	45			,,	,,
,,	9	41			,,	,,
928	12	52			,,	,,
929	6	50			,,	,,
,,	12	47			,,	,,
937	7	3			,,	,,
940	11	14			,,	,,
944	3	25			,,	,,
,,	9	22			,,	,,
947	12	32			,,	,,
967	11			Began, 4 watch 4 teen. This was calculated by the Leaou astronomers, but did not occur according to prediction.	U	53
968	11	27			B	217
969	10	25			A	285
970	4	22			,,	,,
972	8	39			,,	,,
974	8	27		This did not occur according to prediction.	,,	,,
977	6	41		Total.	,,	,,
,,	11	39			,,	,,
978	10	3		Obscured by clouds and invisible.	,,	,,

A. D.	980	8	52	Total.	A 285
	984	1	3		,, ,,
	985	7	55	This did not occur according to prediction.	,, ,,
	987	5	24		,, ,,
	989	3	34	This did not occur according to prediction.	,, ,,
	990	3	27		,, ,,
	991	8	19	Total.	,, ,,
	992	1	40		,, ,,
	,,	8	13	Obscured by clouds and invisible.	,, ,,
	994	6	32		,, ,,
	,,	12	30	Total.	,, ,,
	995	6	26	Obscured by clouds and invisible.	,, ,,
	,,	12	24		,, ,,
	996	10	48		,, ,,
	998	10	37		,, ,,
	999	9	32		,, ,,
	1000	2	59		,, ,,
	,,	8	57		,, ,,
	1001	8	51		,, ,,
	1002	1	48		,, ,,
	,,	7	45		,, ,,
	1003	1	41		,, ,,
	,,	7	39		,, ,,
	1004	11	2		,, ,,
	1005	5	59		,, ,,
	,,	10	27		,, ,,
	1006	11	50		,, ,,

LUNAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 1007	5	48		Obscured by clouds and invisible.	A	285
,,	9	15		This did not occur according to prediction.	,,	,,
1008	9	10			,,	,,
1009	9	4		This did not occur according to prediction.	,,	,,
1010	2In	1			,,	,,
1012	1	21		Obscured by clouds and invisible.	,,	,,
,,	7	17			,,	,,
,,	12	14			,,	,,
1015	10	28			,,	,,
1016	4	26		Obscured by clouds and invisible.	,,	,,
1018	4	19			,,	,,
,,	10	17			,,	,,
1020	2	39			,,	,,
1021	8	30			,,	,,
1024	5	39		This did not occur according to prediction.	,,	,,
1026	5	55			,,	,,
1042	6	24			,,	,,
1045	4	37			,,	,,
,,	9	35			,,	,,
1046	9	29			,,	,,
1050	7	37			,,	,,

A. D. 1052	11	35	Began at 4. a.m.	U	53
1053	10	48		A	285
1055	9	7		,,	,,
1056	8	1		,,	,,
1057	2	59		,,	,,
,,	8	55		,,	,,
1058	12In	18		,,	,,
1059	6	15		,,	,,
,,	12	12		,,	,,
1060	12	6		,,	,,
1062	10	26		,,	,,
1063	10	20	Greatest at 6.45 a.m.	U	53
1064	4	17		A	285
1067	2	31		,,	,,
1068	7	22		,,	,,
1069	11In	44	Begin. 10.30 p.m. Middle 12.15 a.m. End 2. a.m.	U	53
1070	5	42	Rainy and invisible.	A	285
1071	5	36		,,	,,
,,	11	33	Begin. 5.30 a.m. Middle 6.30 a.m.	U	53
1073	3	55	Begin. 9.15 p.m. Middle 10.30 p.m. End 12 p.m.	,,	,,
,,	9	52		A	285
1074	9	46	Begin. 4 watch 5 teen. Total 5 watch 3 teen.	U	53
1076	1	9		A	285
1077	1	3		,,	,,
,,	7	60	Cloudy and invisible.	,,	,,
1078	1	57		,,	,,
,,	6	55		,,	,,

LUNAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 1079	6	49		Cloudy and invisible.	A	285
1080	10	11		Cloudy and invisible.	,,	,,
1081	4	8			,,	,,
,,	10	18			,,	,,
1082	10	60			,,	,,
1083	8	24		This did not occur according to prediction.	,,	,,
1084	2	22		Cloudy and invisible.	,,	,,
,,	8	18		Cloudy and invisible.	,,	,,
1085	8	13			,,	,,
1086	12	35		Cloudy and invisible.	,,	,,
1088	6	27			,,	,,
,,	12	24		Cloudy and invisible.	,,	,,
1089	5	21			,,	,,
1090	5	15		Cloudy and indistinct.	,,	,,
1091	4	40		Cloudy and indistinct.	,,	,,
1092	3	35			,,	,,
1093	9	26		Cloudy and invisible.	,,	,,
1096	7	40		Cloudy and invisible.	,,	,,
1097	1	37		Cloudy and invisible at first; visible afterwards.	,,	,,
1098	5	59		Did not appear as predicted.	,,	,,
1099	5	53			,,	,,

A. D. 1099	10	51		A	285
1100	10	45		,,	,,
1103	2	1		,,	,,
,,	8	58		,,	,,
1104	2	56		,,	,,
,,	8	53		,,	,,
1105	12	15	Middle 4.45 p.m. End 7. p.m.	U	53
1106	6	12		A	285
,,	12	9		,,	,,
1109	10	23		,,	,,
1110	4	21		,,	,,
,,	9	17		,,	,,
1111	3	15		,,	,,
,,	9	11		,,	,,
1113	6	34		,,	,,
,,	7	31		,,	,,
1114	1	28		,,	,,
1116	11	42		,,	,,
1117	11	36		,,	,,
1118	5	33		,,	,,
1120	3	53		,,	,,
1124	1	60		,,	,,
,,	12	55		,,	,,
1129	2	19		,,	,,
1131	8	16	Obscured by clouds and invisible.	,,	,,
1132	2	13	This occurred contrary to calculation.	,,	,,
,,	7	11		,,	,,

LUNAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 1133	7	5			A	285
1134	12	27			,,	,,
1135	11	22			T	20
1136	5	18			A	285
,,	11	16			,,	,,
1138	3	38			,,	,,
,,	9	34			,,	,,
1139	9	29			,,	,,
1142	7	43		Cloudy and invisible.	,,	,,
1143	6	37			,,	,,
,,	12	35		Cloudy and invisible.	,,	,,
1144	6	31			,,	,,
1145	5	56		Cloudy and invisible.	,,	,,
1146	4	51			,,	,,
1151	2	53		Visible at Peking. Obscured by clouds at Hangchow.	T	20
1152	12	13			,,	,,
1153	12	7			,,	,,
1154	3	18			,,	,,
,,	11	1			,,	,,
1155	5	59			A	285
1157	9	14			,,	,,

A. D. 1158	2	18		T	20
1160	1	31		„	„
1161	7	22		„	„
1164	2	36		A	285
„	11	33	Total.	T	20
1165	4	31	Cloudy and invisible.	A	285
1168	2			„	„
1169	2	38		„	„
1170	11	34		„	„
1172	6	49		„	„
1174	4	9	Cloudy and invisible.	„	„
1175	4	3		„	„
„	9	60		„	„
1176	3	57		T	20
„	9	54		„	„
1178	2	16	Cloudy and invisible.	A	285
1179	1	11	Total.	T	20
1181	11	24		A	285
1182	11	18	Total.	T	20
1183	5	16	Total.	„	„
1185	3	35		A	285
„	9	32		„	„
1186	3	29	Visible at Peking. Obscured by clouds at Hangchow.	T	20
„	8	3		A	285
1187	8	21		„	„
1189	12	38	Total.	T	20
1190	6	34	Total.	„	„

LUNAR ECLIPSES.

Year.	Month.	Day of cycle.	R. A.		Book.	Section.
A. D. 1190	12	32			T	20
1191	6	29			,,	,,
1192	4	54		**A** marks this on the 42nd day of the cycle.	,,	,,
1193	9	45			,,	,,
1194	10	40		Visible at Peking. **A** makes this the 9th month, cloudy and invisible at Hangchow.	,,	,,
1196	8	59			,,	,,
1197	2	56		**A** makes this the 7th month. Total.	,,	,,
1198	1	51			,,	,,
,,	7	47			,,	,,
1200	5	7			,,	,,
1201	11	58			,,	,,
1202	5	56			,,	,,
1203	3	20			,,	,,
1204	9	12			,,	,,
1205	3	9			,,	,,
,,	8	6		Visible at Peking. Cloudy and invisible at Hangchow.	,,	,,
1207	1	28		**A** gives this the 29th day of the cycle.	,,	,,
,,	7	25			,,	,,
1208	1	23		**A** makes this the 2nd month, rainy and invisible at Hangchow.	,,	,,
,,	12	17			**A**	285

A. D. 1209	6	14		T	20
„	10	2		„	„
1210	11	47		„	„
	8	44	The year is probably omitted here.	A	285
1214	2	47		T	20
„	8	44		„	„
1215	8	38	Total.	„	„
1216	2	36		„	„
„	In7	32	Visible at Peking. Cloudy and invisible at Hangchow.	„	„
1217	12	55		„	„
1218	6	52		„	„
„	11	49	Total. C makes this the 12th month.	„	„
1219	5	47	Total. Visible at Peking. Cloudy and invisible at Hangchow.	„	„
„	11	42	A makes this the 43rd day of the cycle.	„	„
1220	5	41	Visible at Peking. Cloudy and invisible at Hangchow.	„	„
1221	10	3		A	285
1222	3	40	Cloudy and invisible.	„	„
„	4	60		T	20
1223	3	54	Cloudy and invisible.	A	285
1258	10	28		B	217
1270	3	51	Begin. 1.45 a.m. Middle 3.15 a.m. End. 4.30 a.m.	U	53
1272	7	8	Begin. 1.15 a.m. Middle 2.30 a.m. End. 3.45 a.m.	„	„
1277	4	10	Begin. 0.30 a.m. Total 1.45 a.m. Middle 2.15 a.m. Light reappeared 2.45 a.m. End. 4. a.m.	„	„
1279	2	29	Begin. 0.15 a.m. Middle 1.30 a.m. End. 2.45 a.m.	„	„
„	8	26	Begin. 2.15 a.m. Middle 3.15 a.m. End. 4. a.m.	„	„
1280	8	21	Began in the daylight. End. 7.15 p.m.	„	„

LUNAR ECLIPSES.

Year.	Month.	Day of cycle.	Longitude.	Portion eclipsed.	Beginning.	Total immersion.	Middle.	Emersion.	End.	Book.	Section.
A. D.											
1320	6	59		Total.						U	27
1324	4	8		Total.						„	29
1334	3	40		Total.						E	16
1335	3	34								U	38
1337	1	53								„	39
1339	6	39								„	40
1341	5	59								„	„
„	10	55		Total.						„	„
1343	10	44								„	41
1344	In2	12								„	„
1353	3									B	217
1388	4			This is a preannouncement in an imperial rescript, 2nd moon.						G	9
1403	1	30								F	26
1450	1	28		Eclipsed at 6.45 a.m.						V	31
1460	In11			G notices this, but not as an intercalary month.						F	27
1479	11	35								V	31
1518	10									„	„
1519	9									H	60
„	10									„	„
1548	3									„	„

A. D.												
1570	7										B	217
1577	In8			This is recorded in Gaubil's "Observations Mathematiques."								
1589	12			Do.	do.		do.					
1592	3			End between 5. and 7. a.m. This is given as a prediction of the Astronomical Board.							B	217
											V	31
„	5	11										
1601	5			Recorded in Gaubil's "Observations Mathematiques."								
1602	4			Do.			do.					
„	10			Do.			do.					
1606	2			Do.			do.					
1616	1			Do.			do.					
1617	1			Do.			do.					
1623	9			Do.			do.					
1624	8			Do.			do.					
1627	12			Do.			do.					
1631	4	55									V	31
1632	9										„	„
1636	1	58									„	„
				dig. m.								
1645	1	36	星 0° 16′	8 33	1.3 a.m.		2.45 a.m.		4.28 a.m.		C	264
„	In6	33	女 8° 15′	11 59	7.15 p.m.	8.19 p.m.	8.59 p.m.	9.41 p.m.	10.44 p.m.		„	„
1646	6	28	牛 5° 19′	12 49	10.49 „	11.59 „	0.47 a.m.	1.34 a.m.	2.44 a.m.		„	„
„	12	25	鬼 0° 8′	3 52	3.54 a.m.		5.5 „		6.17 „		„	„
1648	In4	46	尾 4° 50′	3 53	6.48 p.m.		7.59 p.m.		9.10 p.m.		„	„
1650	4	36	氐 14° 46′	6 35	2.16 a.m.		3.45 a.m.		5.14 a.m.		„	„

LUNAR ECLIPSES.

Year.	Month.	Day of cycle.	Longitude.	Portion eclipsed.	Beginning.	Total immersion.	Middle.	Emersion.	End.	Book.	Section.
A. D.				dig. m.							
1652	8	52	室危 6° 37′	8 36	0.47 a.m.		2.24 a.m.		4.1 a.m.	C	264
1653	7	46	危井 16° 24′	15 49	4.46 p.m.	5.39 p.m.	6.40 p.m.	7.40 p.m.	8.34 p.m.	,,	,,
1655	12	3	井斗 21° 2′	9 4	2.46 a.m.		4.26 a.m.		6.6 a.m.	,,	,,
1656	In5	59	斗 9° 25′	13 5	7.42 p.m.	8.49 ,,	9.39 p.m.	10.30 ,,	11.37 p.m.	,,	,,
,,	11	57	井 10° 6′	15 47	4.45 ,,	5.41 ,,	6.40 ,,	7.39 ,,	8.35 ,,	,,	,,
1657	5	54	箕 8° 19′	10 45	2.35 a.m.	3.42 a.m.	4.26 a.m.	5.9 a.m.	6.16 a.m.	,,	,,
,,	11	52	觜 10° 30′	3 25	1.44 ,,		2.53 ,,		4.1 ,,	,,	,,
1659	In3	14	氐 5° 50′	7 36	2.10 ,,		3.42 ,,		5.14 ,,	,,	,,
1660	3	8	亢 6° 9′	16 42	3.9 p.m.	4.10 p.m.	5.8 p.m.	6.6 p.m.	7.7 p.m.	,,	,,
,,	9	4	奎 7° 58′	18 14	6.0 ,,	6.56 ,,	7.57 ,,	8.57 ,,	9.54 ,,	,,	,,
1661	3	2	角 6° 3′	3 37	10.21 ,,		11.33 ,,		0.44 a.m.	,,	,,
1663	7	19	虛 6° 51′	15 40	2.6 a.m.	3.17 a.m.	3.56 a.m.	4.35 a.m.	5.55 ,,	,,	,,
1664	1	15	星 0° 11′	16 25	8.27 p.m.	9.20 p.m.	10.21 p.m.	11.22 p.m.	0.15 ,,	,,	,,
1666	5	32	尾 15° 0′	2 38	2.4 a.m.		3.5 a.m.		4.7 ,,	,,	,,
,,	11	29	箕 0° 49′	7 47	8.47 p.m.		10.28 p.m.		0.8 ,,	,,	,,
1668	10	17	昴 1° 44′	5 31	9.34 ,,		11.0 ,,		0.25 ,,	,,	,,
1670	In3	40	參 9° 50′	8 0	5.22 ,,		7.4 ,,		8.47 p.m.	,,	,,
1671	2	22	觜 15° 46′	17 7	5.9 ,,	6.18 p.m.	7.12 ,,	8.7 p.m.	9.16 ,,	,,	,,

A. D.				dig.	m.								
1671	8	32	室 6° 44′	16	39	0.41 a.m.	1.37 a.m.	2.37 a.m.	3.37 a.m.	4.33 a.m.	C	264	
1672	2	28	翼 4° 45′	4	11	8.53 p.m.		10.8 p.m.		11.23 p.m.	,,	,,	
1674	6	45	斗 19° 36′	11	41	2.26 a.m.	3.32 ,,	4.19 a.m.	5.6 ,,	6.13 a.m.	,,	,,	
,,	12	43	井 21° 6′	15	50	1.21 ,,	2.17 ,,	3.16 ,,	4.15 ,,	5.11 ,,	,,	,,	
1677	10	55	胃 5° 10′	6	0	5.28 p.m.		6.56 p.m.		8.24 p.m.	,,	,,	
1678	In3	54	氐 5° 48′	17	44	10.34 ,,	11.35 p.m.	0.34 a.m.	1.32 ,,	2.33 a.m.	,,	,,	
,,	9	50	婁 7° 13′	18	40	2.16 a.m.	3.13 a.m.	4.13 ,,	5.14 ,,	6.11 ,,	,,	,,	
1679	3	48	亢 5° 51′	4	37	5.11 ,,		6.33 ,,		7.54 ,,	,,	,,	
,,	9	44	奎 8° 4′	6	9	5.47 p.m.		7.15 p.m.		8.40 p.m.	,,	,,	
1681	1	6	張 13° 25′	7	52	5.25 ,,		7.4 ,,		8.42 ,,	,,	,,	
1682	1	1	張 2° 38′	16	46	4.56 a.m.	5.49 ,,	6.50 a.m.	7.52 ,,	8.45 a.m.	,,	,,	
1683	1	55	星 0° 20′	4	12	9.25 p.m.		10.38 p.m.		11.52 p.m.	,,	,,	
1684	11	15	井 0° 14′	7	40	4.57 a.m.		6.36 a.m.		8.14 a.m.	,,	,,	
1685	5	12	尾 15° 4′	14	31	11.42 p.m.	0.37 ,,	1.36 ,,	2.35 ,,	3.29 ,,	,,	,,	
,,	11	9	箕 0° 17′	18	13	4.20 a.m.	5.30 ,,	6.25 ,,	7.20 ,,	8.30 ,,	,,	,,	
1686	In4	6	尾 5° 0′	8	52	5.10 p.m.		6.49 p.m.		8.28 p.m.	,,	,,	
,,	10	3	畢 4° 8′	5	47	5.39 a.m.		7.7 a.m.		8.35 a.m.	,,	,,	
1688	3	26	角 7° 13′	7	22	0.35 ,,		2.13 ,,		3.51 ,,	,,	,,	
,,	9	22	壁 12° 3′	7	14	5.19 p.m.		6.51 p.m.		7.23 p.m.	,,	,,	
1689	3	20	軫 9° 17′	18	3	0.26 a.m.	*2.34 a.m.	2.30 a.m.	3.25 ,,	4.34 a.m.	,,	,,	
1690	2	14	翼 15° 21′	4	52	4.46 ,,		5.56 ,,		7.16 ,,	,,	,,	
,,	8	11	室 6° 39′	4	13	8.12 p.m.		9.27 p.m.		10.42 p.m.	,,	,,	
1691	12	33	柳 7° 53′	8	49	8.14 ,,		9.53 ,,		11.31 ,,	,,	,,	
1693	6	24	斗 19° 19′	13	32	4.38 ,,	5.40 p.m.	6.34 ,,		7.27 ,,	,,	,,	

* This is probably a misprint for 1.34 a.m.

LUNAR ECLIPSES.

Year.	Month.	Day of cycle.	Longitude.	Portion eclipsed.	Beginning.	Total immersion.	Middle.	Emersion.	End.	Book.	Section.
A. D.				dig. m.							
1693	12	22	井 20° 54′	3 31	6.14 p.m.		7.26 p.m.		8.38 p.m.	C	264
1695	4	44	心 3° 41′	5 12	5.32 ,,		6.52 ,,		8.12 ,,	,,	,,
,,	10	41	鬼 2° 59′	5 45	1.36 a.m.		3.2 a.m.		4.28 a.m.	,,	,,
1697	9	30	觜 7° 19′	6 32	2.23 ,,		3.52 ,,		5.20 ,,	,,	,,
1699	2	52	翼 6° 2′	7 23	1.29 ,,		3.5 ,,		4.41 ,,	,,	,,
,,	In7	49	危 17° 33′	8 19	4.41 p.m.		6.22 p.m.		8.4 p.m.	,,	,,
1700	7	43	危 6° 43′	16 47	6.37 ,,	7.47 p.m.	8.41 ,,	9.35 p.m.	10.45 ,,	,,	,,
1701	1	41	張 2° 47′	4 26	5.59 a.m.		7.15 a.m.		8.30 a.m.	,,	,,
,,	7	37	虛 5° 52′	3 10	8.22 p.m.		9.29 p.m.		10.35 p.m.	,,	,,
1704	5	52	尾 15° 12′	10 3	0.33 a.m.	1.31 a.m.	2.17 a.m.	2.59 a.m.	4.1 a.m.	,,	,,
1706	9	8	奎 9° 29′	6 43	1.52 ,,		3.21 ,,		4.51 ,,	,,	,,
1707	9	2	壁 12° 10′	18 1	4.46 p.m.	5.43 p.m.	6.43 p.m.	7.43 p.m.	8.40 p.m.	,,	,,
1708	8	57	壁 1° 28′	5 1	3.42 a.m.		5.4 a.m.		6.26 a.m.	,,	,,
1710	1	19	星 1° 46′	8 37	5.4 ,,		6.42 ,,		8.20 ,,	,,	,,
,,	7	15	女 8° 27′	9 4	4.2 p.m.		5.46 p.m.		7.30 p.m.	,,	,,
,,	12	13	柳 7° 56′	16 2	6.27 ,,	7.23 p.m.	8.22 ,,	9.21 p.m.	10.17 ,,	,,	,,
1711	6	10	牛 5° 39′	14 53	11.47 ,,	0.43 a.m.	1.42 a.m.	2.40 a.m.	3.36 a.m.	,,	,,
,,	12	8	鬼 1° 25′	3 38	2.20 a.m.		3.32 ,,		4.44 ,,	,,	,,

A. D.					dig. m.								
1713	3	30	尾	6° 20′	3 53	1.3 a.m.		2.15 a.m.		3.26 a.m.	C	264	
1715	4	18	氐	15° 45′	6 59	6.43 p.m.		8.19 p.m.		9.55 p.m.	,,	,,	
1717	8	35	室	7° 53′	7 19	0.8 a.m.		1.45 a.m.		3.22 a.m.	,,	,,	
1718	2	31	翼	6° 0′	17 46	9.43 p.m.	10.36 p.m.	11.38 p.m.	0.40 a.m.	1.34 ,,	,,	,,	
,,	8	29	危	17° 5′	17 55	1.36 a.m.	2.46 a.m.	3.41 a.m.	4.36 ,,	5.46 ,,	,,	,,	
1719	7	23	危	6° 12′	4 21	3.9 ,,		4.27 ,,		5.46 ,,	,,	,,	
1720	12	45	井	22° 8′	7 25	9.11 p.m.		10.51 p.m.		0.30 ,,	,,	,,	
1721	11	39	井	10° 37′	18 28	8.22 ,,	9.32 p.m.	10.27 ,,	11.22 p.m.	0.32 ,,	,,	,,	
1722	11	33	觜	10° 42′	6 3	9.59 ,,		11.29 ,,		1.0 ,,	,,	,,	
1725	9	48	角	8° 14′	18 28	1.9 a.m.	2.12 a.m.	3.6 a.m.	4.0 a.m.	5.2 ,,	,,	,,	
1726	3	44	奎	7° 51′	6 32	7.25 p.m.		8.57 p.m.		10.29 p.m.	,,	,,	
1728	7	1	星	4° 8′	7 46	11.7 ,,		0.48 a.m.		1.29 a.m.	,,	,,	
1729	1	59	虛	5° 42′	16 24	2.42 a.m.	3.46 ,,	4.39 ,,	5.31 ,,	6.35 ,,	,,	,,	
1730	6	49	鬼	4° 4′	3 11	10.46 p.m.		11.49 p.m.		0.53 ,,	,,	,,	
1731	11	11	尾	9° 30′	5 22	6.15 ,,		7.40 ,,		9.5 p.m.	,,	,,	
1732	5	9	畢	13° 11′	15 33	7.53 ,,	9.0 p.m.	9.53 ,,	10.46 p.m.	11.52 ,,	,,	,,	
,,	10	6	畢	5° 19′	17 54	3.54 a.m.	4.56 a.m.	5.49 a.m.	6.43 a.m.	7.45 a.m.	,,	,,	
1733	4	4	心	3° 16′	7 23	1.28 ,,		3.3 ,,		4.37 ,,	,,	,,	
,,	10	60	昴	3° 43′	7 10	7.36 p.m.		9.6 p.m.		10.35 p.m.	,,	,,	
1735	3	22	軫	10° 13′	6 10	5.13 ,,		6.42 ,,		8.10 ,,	,,	,,	
1737	2	11	翼	6° 1′	5 24	10.44 ,,		11.59 ,,		1.13 a.m.	,,	,,	
1738	12	31	鬼	2° 32′	5 52	5.28 a.m.		6.54 a.m.	(7.8 a.m. set eclipsed 5′ 42″)		,,	,,	
1739	6	27	斗	20° 43′	10 59	10.17 p.m.	11.31 p.m.	11.54 p.m.	0.17 a.m.	1.31 a.m.	,,	,,	

LUNAR ECLIPSES.

Year.	Month.	Day of cycle.	Longitude.	Portion eclipsed.	Beginning.	Total immersion.	Middle.	Emersion.	End.	Book.	Section.
A. D.				dig. m.							
1739	12	25	井 21° 28′	17 41	4.17 a.m.	5.22 a.m.	6.15 a.m.	7.8 a.m.		C	264
					(7.17 a.m. set eclipsed 8′ 37″)						
1740	11	9	井 10° 3′	5 19	6.10 „	(7.23 a.m. set eclipsed 5′ 15″)				„	„
1742	4	41	氐 16° 50′	2 1	10.1 p.m.		10.56 p.m.		11.49 p.m.	„	„
„	10	38	胃 6° 36′	5 44	6.53 „		8.9 „		10.25 „	„	„
1743	4	35	氐 6° 1′	16 9	9.28 „	10.33 p.m.	11.24 „	0.16 a.m.	1.21 a.m.	„	„
1744	3	30	亢 5° 58′	6 57	2.54 a.m.		4.23 a.m.		5.12 „	„	„
„	9	27	奎 9° 42′	5 26	7.7 p.m.		8.28 p.m.		9.49 p.m.	„	„
1746	2	49	張 14° 51′	7 50	10.2 „		11.28 „		0.55 a.m.	„	„
1748	1	38	星 1° 21′	2 59	6.35 „		7.37 „		8.40 p.m.	„	„
1749	11	57	井 0° 28′	4 9	2.40 a.m.		3.51 a.m.		5.3 a.m.	„	„
1750	5	55	箕 0° 33′	13 38	3.2 „	4.8 a.m.	(4.35 a.m. set eclipsed 13′ 0″)			„	„
1751	10	46	畢 5° 23′	7 29	4.3 „		5.27 a.m.		6.52 a.m.	„	„
1753	*3*	*8*	角 7° 31′	4 32	1.12 „		2.25 „		3.37 „	„	„
„	*9*	*5*	奎 0° 21′	4 16	3.35 p.m.		4.49 p.m.		6.3 p.m.	„	„
					(5.35 p.m. rose eclipsed 2′ 29″)						
1754	8	59	壁 2° 22′	17 23	3.53 p.m.		5.51 p.m.	6.44 p.m.	7.49 „	„	„
					(5.49 p.m. rose eclipsed 17′ 23″)						

A. D.				dig. m.								
1755	8	53	室 6° 57′	5 37	5.1 p.m.		6.24 p.m.		7.48 p.m.	C	264
					(6.4 p.m. rose eclipsed 5′ 12″)						
1758	6	8	斗 20° 50′	14 22	10.35 p.m.	11.36 p.m.	0.19 a.m.	2.3 a.m.	2.4 a.m.	,,	,,
,,	12	4	井 20° 58′	5 28	2.26 ,,		3.48 p.m.		5.9 p.m.	,,	,,
					(4.43 p.m. rose eclipsed 2′ 42″)						
1760	10	24	昴 5° 17′	5 29	3.33 a.m.		4.48 a.m.		6.3 a.m.	,,	,,
1761	4	21	氐 16° 18′	14 50	4.14 ,,	(4.49 a.m. set eclipsed 5′ 28″)				,,	,,
,,	10	18	胃 6° 42′	17 47	5.34 p.m.	6.47 p.m.	7.22 p.m.	8.13 p.m.	9.11 p.m.	,,	,,
1762	9	13	婁 8° 43′	5 52	2.59 a.m.		4.23 a.m.		5.46 a.m.	,,	,,
1765	2	29	張 14° 50′	17 12	7.17 p.m.	8.17 ,,	9.7 p.m.	9.58 ,,	10.58 p.m.	,,	,,
,,	7	25	危 7° 19′	18 39	9.57 ,,	10.56 ,,		0.38 a.m.	1.37 a.m.	,,	,,
1766	1	24	張 3° 46′	3 19	2.28 a.m.		3.34 a.m.		4.41 ,,	,,	,,
1768	11	6	井 0° 22′	17 28	9.10 p.m.	10.8 ,,	10.57 p.m.	11.47 p.m.	0.45 ,,	,,	,,
1771	9	51	奎 10° 54′	3 34	9.22 ,,		0.31 a.m.		1.40 ,,	,,	,,
1772	3	47	角 7° 29′	17 41	10.8 ,,	11.5 ,,	11.55 p.m.	0.59 a.m.	1.41 ,,	,,	,,
,,	9	45	壁 12° 56′	16 33	11.13 ,,	0.19 a.m.	1.11 a.m.	2.3 ,,	3.3 ,,	,,	,,
1773	8	39	壁 1° 46′	6 33	0.19 a.m.		1.48 ,,		3.17 ,,	,,	,,
1775	1	1	星 2° 46′	5 19	9.29 p.m.		10.51 p.m.		0.14 ,,	,,	,,
,,	12	55	柳 8° 16′	18 6	8.11 ,,	9.15 p.m.	10.9 ,,	11.1 p.m.	0.6 ,,	,,	,,
1776	12	50	鬼 1° 26′	5 39	10.41 ,,		0.4 a.m.		1.26 ,,	,,	,,
1777	6	47	斗 20° 50′	0 57	7.57 ,,		8.32 p.m.		9.8 p.m.	,,	,,
1779	10	4	昴 5° 7′	17 31	2.1 a.m.	3.0 a.m.	3.50 a.m.	4.40 a.m.	5.39 a.m.	,,	,,
1780	4	60	氐 15° 55′	9 30	5.16 p.m.		6.54 p.m.		8.32 p.m.	,,	,,
					(7.10 p.m. rose eclipsed 9′ 7″)						

LUNAR ECLIPSES.

Year.	Month.	Day of cycle.	Longitude.	Portion eclipsed.	Beginning.	Total immersion.	Middle.	Emersion.	End.	Book.	Section.
A. D.				dig. m.							
1782	8	16	室 8° 17′	3 16	9.5 p.m.		10.10 p.m.		11.16 p.m.	C	264
1783	2	15	翼 7° 37′	17 46	3.22 a.m.	4.23 a.m.	5.14 a.m.	6.5 a.m.	7.5 a.m.	„	„
			(6.2 a.m. set eclipsed 10′ 24″)								
„	8	11	危 17° 43′	17 38	5.9 a.m.	6.38 a.m.	7.29 a.m.	8.20 „	9.18 „	„	„
			(5.44 a.m. set eclipsed 0′ 49″)								
1784	7	5	危 7° 19′	6 40	9.17 p.m.		10.39 p.m.		0.0 a.m.	„	„
1785	12	27	井 22° 24′	4 5	7.27 „		8.37 „		9.48 p.m.	„	„

The preceding list of 925 solar and 574 lunar eclipses has been collected from various Chinese sources accessible to me, and represents I believe nearly all that can be gathered from the native literature.

In the first column, the year does not exactly coincide with the European year of the same date; but represents the Chinese year, which generally commences in our January or February; so that there is frequently a discrepancy of one or two months. For instance the eclipse which took place on February 3rd, 1711, is registered as the 12th month of 1710; and that of January 24th, 1712, is put in the table the 12th month of 1711. The advantage of this notation however, in a European point of view, amply compensates for the little apparent inconsistency; as, for example where we replace Kang-he 49, by A. D. 1710, or instead of Yung-ching 3 we write A. D. 1725. To have reduced the table altogether to Gregorian time, would have involved a number of curious chronological problems, and far exceeded the time I could give to it

In the second column "In." placed before some of the numbers, implies that they are intercalary months; thus "In 7" is the "Intercalary 7th month."

The third column gives the number of the day in the sexagenary cycle; illustrating a practice which has existed from unknown antiquity, and is an invaluable resource for identifying the date of any eclipse.

In former times the method of dividing the night was into five 更 *kang* "watches," from the end of evening twilight, to the beginning of morning twilight, and each watch into five 唱 *ch'ang*, also called 籌 *ch'ow*, and 點 *tëèn* respectively, at different periods.

From the commencement of the present dynasty, the longitude of the luminaries at the middle of the eclipse, is given in a fourth column. This is according to the 28 constellations of the Zodiac, the distance being noted from the nearest determinant star on the west. Thus, for the year 1785, where we have 井 *Tsing* 22° 24′, suppose the longitude of *Tsing* to be 92° 30′, the place of the eclipse will be Long. 114° 54′. The following are the names of the twenty-eight constellations, and the longitudes of their determinant stars for A.D. 1800, as given by Biot in his "Précis de l'Histoire de l'Astronomie Chinoise."

角	*Kŏŏ*	201°	3′	0″	奎	*K'wei*	17°	48′	12″
亢	*K'ang*	211	42	1	婁	*Leu*	31	10	39
氐	*Tē*	222	17	35	胃	*Wei*	44	8	47
房	*Fâng*	240	8	48	昴	*Maòu*	57	12	1
心	*Sin*	245	0	25	畢	*Peĭh*	65	39	58
尾	*Wei*	253	27	15	觜	*Tsuy*	80	54	47
箕	*Kê*	268	28	15	參	*Ts'an*	79	34	6
斗	*Tòw*	277	23	6	井	*Tsìng*	92	30	21
牛	*Nêw*	301	15	11	鬼	*Kwei*	122	56	24
女	*Neu*	308	55	54	柳	*Lèw*	127	31	4
虛	*Heu*	320	36	16	星	*Sing*	144	29	44
危	*Weê*	330	33	45	張	*Chang*	152	54	37
室	*Shĭh*	350	41	59	翼	*Yĭh*	170	56	9
壁	*Peĭh*	6	22	9	軫	*Chin*	187	56	52

Anterior to the present dynasty it was customary to record the positions of the heavenly bodies by equatorial measurement, which I have marked Right Ascension, although it differs from the application of that term in European Astronomy, in giving the place in degrees instead of hours. I merely make this remark for the better understanding of the ancient theory; for the recorded observations of olden times are of too rude a character, to render it of any great importance whether we consider them as Longitude or Right Ascension.

The fifth column gives the extent of the eclipse in digits and minutes, the diameters of the sun and moon respectively, being divided into 10 digits.

The five following columns give the times of Beginning, Total Immersion, Middle, Reappearance of Light, and End of the Eclipse.

The two letters l. d. appended to many of the early eclipses, signify that they occurred on the last day of the calendar month.

The two last columns shew the native authority and the section or book from which the record is copied. Seven of the solar and fourteen of the lunar eclipses, of which I have failed to find a notice in any Chinese work within my reach, are given on the authority of Gaubil, who professes to have extracted them from Chinese authors,—as published in the 3rd volume of Souciet's "Observations Mathématiques, Astronomiques, Geographiques, Chronologiques, et Physiques." The following are the several works indicated by the letters.

A 書經 *Shoo king.* Book of Government.
B 詩經 *She king.* Book of Odes.
C 春秋 *Ch'un ts'ew.* Spring and Autumn Annals.
D 史記 *Shè ké.* Historical Record.
E 前漢書 *Tsëën hán shoo.* Book of the Former Han.
F 後漢書 *Hów hán shoo.* Book of the After Han.
G 三國志 *San kwŏ ché.* Memoirs of the three Kingdoms.
H 晉書 *Tsín shoo.* Book of Tsin.
I 宋書 *Súng shoo.* Book of Sung.
J 陳書 *Ch'în shoo.* Book of Chin.
K 魏書 *Wei shoo.* Book of Wei.
L 北齊書 *Pĭh tse shoo.* Book of the Northern Tse.
M 周書 *Chow shoo.* Book of Chow.
N 隋書 *Suy shoo.* Book of Suy.
O 南史 *Nân shè.* Southern History.
P 北史 *Pĭh shé.* Northern History.
Q 新唐書 *Sin t'âng shoo.* New book of Tang.
R 舊五代史 *K'éw woò taé shè.* Old history of the Five Dynasties.
S 遼史 *Leaou shè.* Leaou History.
T 金史 *Kin shè.* Kin History.
U 元史 *Yuên shè.* Yuen History.
V 明史 *Ming shè.* Ming History.
W 說苑 *Shwŏ yuên.* Flowers of Conversation.
X 古今注 *Koò kin choó.* Remarks on subjects, old and new.
Y 通志 *T'ung ché.* National archives.
Z 唐會要 *T'âng hwúy yaou.* Notabilia of the Tang Dynasty.
& 通鑑綱目 *Tung këén kang mŭh.* Mirror of History.
A 文獻通考 *Wăn hëén t'ung k'aŏu.* Antiquarian researches.
B 續文獻通考 *Săh wăn hëén t'ung k'aòu.* Supplement to Antiquarian researches.
C 皇朝文獻通考 *Hwâng ch'aow wăn hëén t'ung k'aòu.* Antiquarian researches of the present Dynasty.
D 宏簡錄 *Hung këen lŭh.* History of the Middle ages.
E 續宏簡錄 *Săh hung këen lŭh.* Supplement to the History of the Middle ages.

F 鳳洲綱鑑全編 *Fung chow kang këen tseuên pêen.* Fung-chow's Mirror of History.

G 明紀芳摹 *Ming kè fang moo.* Outline history of the Ming.

H 吾學編 *Woô hëŏ pëen.* History of the early Ming.

The Sung and Kin, who ruled contemporaneously, had their respective capitals at Hang-chow and Peking, and have each left a record of Astronomical observations. These must necessarily in great part refer to the same objects; and it is worthy of remark how frequently the Hang-chow astronomers allude to the cloudy state of the atmosphere, as cutting off their view of the eclipses, while their contemporaries in the north register the same phenomena, without allusion to any cloudy interruptions in the clear atmosphere of Peking.

A good many of the eclipses are recorded as calculations, with a note appended to the effect that they were not seen by the official observers. Some of these were afterwards calculated by Schall, the President of the Astronomical Board at the commencement of the present dynasty, who found that eclipses actually took place about the times predicted. The difficulty of observing very small eclipses with such instruments only as the Chinese possessed, can be readily appreciated by practical observers. Schall attributes negligence to the observers, which may be true; but it is not improbable that motives of state policy might sometimes be an inducement to ignore an eclipse. There are probably a good many errors in marking the months; which is not surprising, when we consider how many ages the records must have been handed down by manuscript transfers, before the art of printing was introduced.

Altogether we have here a catalogue of eclipses of obvious utility to the historian, and probably not without their value to the man of science; and although the number of errors is naturally very considerable, yet there are so many counter-checks, that at the expense of a little time and care almost any of them may be rectified.

ARTICLE VIII.

CHINESE CHRONOLOGICAL TABLES.

By Wm. FREDK. MAYERS, Esq.

In the historical tables appended below the simple aim of the compiler has been to present in an accessible form, favourable to easy reference, a view of the successive Chinese dynasties and their individual reigns, such as is likely to prove useful in historical researches. The practice in Chinese literature of defining the dates of historical events either by reference to the corresponding year of an Emperor's reign or by quoting the cyclical character appertaining to the particular year, renders the possession of such tables an absolute necessity; and the present is by no means the first time that a record of the kind has been projected. The earliest Chinese historical tables published in English are comprised in Morrison's "*View of China*," where, however, the arrangement is both faulty and defective. In Gutzlaff's "*History of China*" a more complete system is followed, though here also precision in dates is wanting; and in 1842 one of the writers in the "Chinese Repository" prepared a table of the sovereigns distinguished by their posthumous titles alone; but in none of these compilations are all the requirements of Chinese Chronology satisfactorily met. For the purpose of supplying a complete Chronological index, several distinct conditions must needs be fulfilled. It is scarcely necessary to point out that the Emperors of China themselves are known in history by the posthumous title[1] conferred upon them after death, but that their reigns are designated by appellations[2] chosen according to their own fancy whilst on the Throne, and frequently changed during the period of their sway.[3] What is required, therefore, is a table which shall fix not only the date of accession

1. 廟號, *Miao Hao, lit.* Temple-title, *i.e.* the title under which the sovereign is canonized (*shih* 諡) in the ancestral Temple.

2. 年號, *Nien Hao, lit.* Annual-title, or epochal designation.

3. This was more particularly the case with the earlier dynasties. The present dynasty has not employed more than one title for each reign.

of the Emperor known by his canonical title, but also of the commencement of each period of his reign as distinguished by its special appellation. The fulfilment of this object is attempted in the annexed tables,[4] which have been compiled from original sources.

Still, however, something remains to be elucidated. The Chinese employ an independent method of specifying a precise period of time, viz: by means of the Cycle of sixty years,[5] of which no comparative table has hitherto (so far as the present writer's knowledge serves him) been constructed. The attempt is now made, and its result is presented herewith, as a necessary introduction to the historical tables. The two combined will be found, the writer hopes, a complete index to Chinese Chronology.

A brief inquiry into the nature of the titles applied to Chinese sovereigns must next be added. As regards the designations by which history recognizes the successive sovereigns of the mythological dynasties, no satisfactory explanation can be arrived at, and it does not appear worth while to occupy space and time in retailing here the theories advanced by various Chinese writers on this subject. As regards the line of doubtful sovereigns antecedent to the Hia dynasty, the name of the individual is by some authors declared to be that of his birth-place, and *vice versâ;* whilst in many of the titles of the sovereigns of Shang an obvious but yet unexplainable connection exists between the sovereign's appellation and the characters of the cyclical period.

4. As an example of their intended application, it may be assumed that in the course of Chinese reading a reference is met with entailing the verification of the "3rd year of Wu Ti of the Tsin dynasty." On turning to the page of the Tables comprising the Tsin dynasty, A. D. 265 is found to be the first year of Wu Ti's reign, and it becomes obvious that the 3rd year corresponds to A.D. 267. If, however, in lieu of referring to this sovereign by his *miao hao* or posthumous title the Chinese historian has spoken of the "3rd year of T'ai Shih of the Tsin dynasty," it will be found on consulting the Tables that T'ai Shih was the first of three successive *nien hao* or epochal designations adopted during the course of Wu Ti's reign, and that the year 267 is still indicated.

5. The invention of the Cycle, commonly called *Hwa Kia Tze*, 花甲子, or List of the Kia Tze characters, is a subject upon which great uncertainty prevails, but which has been ably discussed by the Rev. J. Chalmers in his chapter on the astronomy of the Chinese in Legge's *Shoo King*, Prolegomena, p. 90. The use of the *Kia tze* characters for the designation of *months* is undoubtedly of very high antiquity, but it was not until about the commencement of our present era that the cyclical table was brought into use for the

In the succeeding dynasty of Chow, with which history begins to dawn, we find the sovereigns designated by a series of honorific titles such as "the Martial King," "the Glorious King," &c., corresponding to the *miao hao* of later times, of which, indeed, they are the declared origin. The earlier examples among them, however, must be considered as probably the invention of later times, notwithstanding the fact that Chow Kung, the great counsellor of the founder of the Chow dynasty, B.C. 1122, is the reputed author of the practice of canonization.[6]

purpose of distinguishing *years*. Later historians, however, have not hesitated to carry back not only the chronological series of cycles to the earliest ages, but also to attribute its invention to the mythical Emperor Hwang Ti. The reign of this sovereign is stated to have commenced B.C. 2697, and the invention of the cycle is credited to the 8th year of his reign, his sixty-first year, or B.C. 2637, being usually considered the commencement of the first of the cycles, though with some writers the cycle is made to commence with the first year of Hwang Ti's reign, thus adding one to the total number of cyclical periods recognized by the adverse party. The system most commonly followed is that in which the cycles are made to commence with the 61st year of Hwang Ti, and the present tables are drawn up in conformity with it. The short columns at the head of the tables contain the date of commencement of each cycle, in rotation, followed below by the years in successive order. Thus, for instance, *kia tze* was the combination denoting the years A.D, 4, 304, 604, &c., down to 1804, and the following combination, *yi ch'ow*, corresponds to A.D. 5, 305, 665, &c., down to 1805. In the next column a second period is commenced, comprising all the cycles beginning with the years shown in the index-column at the top, E. G. (still to use the date already referred to in note 4 for the purpose of exemplification) we desire to ascertain the date according to our era of an event occurring "in the year *ting hai* 丁亥 of Wu Ti of the Tsin Dynasty," we find on consulting the historical tables that Wu Ti's reign commenced A.D. 265, and turning to the table of cycles, it is found that a cyclical period commenced in A.D. 244 and must therefore have embraced within its course the reign of Wu Ti. Fixing A.D. 265, the first of his reign, as the year *yi yeo* 乙酉 of the cycle, we follow the column of characters down until we reach *ting hai*, and at once identify this combination, on reference to the column of years, as A.D. 267.

6. In the 史記 *Shih Ki* or Historical Records by Sz-ma Ts'ien, B.C. 104, under the heading 諡法 *Shih Fa*, the institution of posthumous titles is attributed to Chow Kung. The character *Shih* is explained in the *Shwo Wên* dictionary (A.D. 200) as 行之迹也 "the vestiges of action." Commentators have further declared that 諡者, the conferring of titles after death, is the means "by which virtue is exalted and vice receives its meed of blame."

In the year B. C. 221 the ambitious Chêng Wang of Ts'in, who extended the rule of a petty principality of the West over the territories formerly divided among the feudatory States constituting the Empire of Chow, declared himself the supreme ruler of the Chinese; and as founder of a dynasty which he trusted would endure for ever assumed for the first time the designation *Hwang Ti* 皇帝, sovereign ruler or *Emperor*, combining in this term the titles ascribed to the three *Hwang* and five *Ti* recognized by tradition as the earliest sovereigns. One of his first decrees, as recorded in history, ordained the abolition of the use of posthumous titles, declaring it his pleasure that he should be known simply as Shih Hwang Ti 始皇帝, the "First Emperor," and that all successive generations should be distinguished numerically as 二世,三世,至于萬世, "the second generation, the third generation, and thus onward to the ten thousandth." Alas for human ambition! The mighty innovator's line was barely suffered to fulfil the commencement of its second reign when its career was brought to a violent end, and the dynasty of Han was founded on its ruins. With the commencement of this dynasty we begin to tread on firm historical ground; and with the consolidation of the Empire new customs and ordinances are found to have been instituted, the rudiments of most of those existing at the present day. The early sovereigns of this house restored the practice of conferring posthumous titles. Its founder, on declaring himself Emperor, B. C. 202, assumed the title of Kao Hwang Ti 高皇帝, "the Exalted Emperor," under which title his memory was venerated in the ancestral temple established B. C. 194 by his son and successor Hwei Ti. It was not, however, until the reign of King Ti, B. C. 156, that the posthumous titles for the preceding sovereigns were formally determined. The first recorded action of King Ti is set forth in history as follows: "In the 10th month of the first year of his reign he canonized the Exalted Emperor by the title *T'ai Tsu* 太祖, [Grand Forefather], and the Emperor *Hiao Wu* by the title *T'ai Tsung* 太宗, [Grand Ancestor.][7] Since this period the rule of canonization has been uninterruptedly followed, with but slight modifications in the style of nomen-

7. The weak boy-ruler Hwei Ti and his usurping mother, the consort of Kao Ti, were omitted from canonization, as unworthy of a place in the ancestral line.

clature through all changes of dynasty; and its honours have as a rule been extended by the founder of each new line to the last sovereign of the dynasty he supplanted.

To come now to the customs of designating each reign by a peculiar title, we find the first institution of this practice to have originated with a decree by the Emperor Wên Ti, who ordained in B. C. 164[8] that the 17th year of his reign should be considered the first of a new period. As yet, however, no special titles were invented to designate such portions of the reign, not was it until the reign of Wu Ti, B. C. 140, that this system became finally perfected. From that date until the present day the series of epochal designations has been unbroken.[9]

The scope of the present compilation being purely mechanical, it would be foreign to its purpose to enter upon an investigation of the credibility of the early Chinese annals, which, however, it

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8. The *T'ung Kien Kang Mu* records this event as follows: 詔更以明年爲元年 "he decreed that the next year, [the 17th of his reign] should be entitled *Yüan Nien* the First Year. From time immemorial, the first year of each reign had been distinguished by the term 元, which combines the meanings "highest" and "first"; and Wên Ti, moved by the flattery of designing counsellors, was induced to arrogate this title to more than one year of his reign, which thus became divided into two portions."

9. The existing fragments of a work entitled 文館詞林, a collection of ancient documents originally forming 1,000 *K'üan*, which was compiled A.D. 658 by an official of the T'ang dynasty, comprise a decree by Ngai Ti of the Han dynasty, (B. C. 5), which exhibits the course pursued in ordaining a change of *Nien Hao*. The Decree is as follows:

—"The fortunes of Han have endured for two hundred years. Their foundation was willed by destiny. Imperial Heaven hath sent down its protection to the foolish, and a renewal of the talisman of Empire hath been granted to the State of Han. Unrighteous as we know ourselves to be, how shall We venture to ignore the high command by which Our Throne exists? It behoves us that we aim at reformation in common with all Our subjects. Let there be a Great Pardon throughout Our Empire. Let also the second year of the period *Kien P'ing* be styled the first year of the era *T'ai Ch'u Yüan Tsiang* [*i.e.* Grand Commencement, Great Beginning]."

The change decreed above is not recorded in history as an accomplished fact. We read in the *T'ung Kien Kang Mu* as follows, under date of the 6th month of the 2nd year of *Kien P'ing:* "A general pardon declared. The *nien-hao* changed to *T'ai Ch'u* 太初. The Emperor's designation changed to *Ch'ên Shêng Liu T'ai P'ing Hwang Ti.*" Almost immediately ensuing we find a farther record: "In the eighth month a decree was issued abrogating the change of *nien-hao* and title."

may be added, the writer believes altogether incapable of standing the test of criticism. Dr. Legge has gone far on the path of destruction as regards the myths concerning Yao and Shun, the Great Yü, and their successors, which are tranquilly received as genuine history by the Chinese, but the sphere of incredulity may, in the writer's opinion, be extended to the ages immediately preceding the era of Confucius. He trusts on a future occasion to justify this expression of lack of confidence in the Chinese historical records.

*** It will be observed that in all the early reigns, from Fu Hi down to the founder of the Han dynasty, a difference of one year exists between the dates given in the following tables and those found in other lists, and notably in the "Table of Ancient Chinese Chronology" contained at p. p. 185 *et seq.* of the prolegomena to Dr. Legge's translation of the Shoo King. Owing to Dr. Legge's absence from China, the writer has been unable to fulfil his wish to consult the learned translator as to the cause of this difference, which he can only account for to himself by the surmise that for astronomical purposes Dr. Legge may have reduced the calculations of the cycle to a different standard from that usually followed. This is not, however, stated in his work, and the writer confesses his failure to discover the principle upon which the year 甲辰, the first of the reign of Yao, calculated as B. C. 2357 in the accompanying tables, has been placed by Dr. Legge as B. C. 2356.

COMPARATIVE TABLE OF THE CHINESE CYCLES ANTERIOR TO THE CHRISTIAN ERA

[Cycles 1 to 44, or B. C. 2637 to A. D. 3].

Cyclical Character.	Cycle Commencing.					Cyclical Character.	Cycle Commencing.				
	B. C. 57 357 657 957 1257 1557 1857 2157 2457	B. C. 117 417 717 1017 1317 1617 1917 2217 2517	B. C. 177 477 777 1077 1377 1677 1977 2277 2577	B. C. 237 537 837 1137 1437 1737 2037 2337 2637	B. C. 297 597 897 1197 1497 1797 2097 2397		B. C. 57 357 657 957 1257 1557 1857 2157 2457	B. C. 117 417 717 1017 1317 1617 1917 2217 2517	B. C. 177 477 777 1077 1377 1677 1977 2277 2577	B. C. 237 537 837 1137 1437 1737 2037 2337 2637	B. C. 297 597 897 1197 1497 1797 2097 2397
甲子 *kia-tze.*	57	17	77	37	97	甲午 *kia-wu.*	27	87	47	7	67
乙丑 *yih-ch'ow.*	56	16	76	36	96	乙未 *yi-wei.*	26	86	46	6	66
丙寅 *ping-yin.*	55	15	75	35	95	丙申 *ping-shên.*	25	85	45	5	65
丁卯 *ting-mao.*	54	14	74	34	94	丁酉 *ting-yeo.*	24	84	44	4	64
戊辰 *wu-shên.*	53	13	73	33	93	戊戌 *wu-sü.*	23	83	43	3	63
己巳 *ki-sze.*	52	12	72	32	92	己亥 *ki-hai.*	22	82	42	2	62
庚午 *kêng-wu.*	51	11	71	31	91	庚子 *kêng-tze.*	21	81	41	1	61
辛未 *sin-wei.*	50	10	70	30	90	辛丑 *sin-ch'ow.*	20	80	40	00	60
壬申 *jên-shên.*	49	9	69	29	89	壬寅 *jên-yin.*	19	79	39	99	59
癸酉 *kwei-yeo.*	48	8	68	28	88	癸卯 *kwei-mao.*	18	78	38	98	58
甲戌 *kia-sü.*	47	7	67	27	87	甲辰 *kia-shên.*	17	77	37	97	57
乙亥 *yih-hai.*	46	6	66	26	86	乙巳 *yih-sze.*	16	76	36	96	56
丙子 *ping-tze.*	45	5	65	25	85	丙午 *ping-wu.*	15	75	35	95	55
丁丑 *ting-ch'ow.*	44	4	64	24	84	丁未 *ting-wei.*	14	74	34	94	54
戊寅 *wu-yin.*	43	3	63	23	83	戊申 *wu-shên.*	13	73	33	93	53
己卯 *ki-mao.*	42	2	62	22	82	己酉 *ki-yeo.*	12	72	32	92	52
庚辰 *kêng-shên.*	41	1	61	21	81	庚戌 *kêng-sü.*	11	71	31	91	51
辛巳 *sin-sze.*	40	00	60	20	80	辛亥 *sin-hai.*	10	70	30	90	50
壬午 *jên-wu.*	39	99	59	19	79	壬子 *jên-tze.*	9	69	29	89	49
癸未 *kwei-wei.*	38	98	58	18	78	癸丑 *kwei-ch'ow.*	8	68	28	88	48
甲申 *kia-shên.*	37	97	57	17	77	甲寅 *kia-yin.*	7	67	27	87	47
乙酉 *yih-yeo.*	36	96	56	16	76	乙卯 *yih-mao.*	6	66	26	86	46
丙戌 *ping-sü.*	35	95	55	15	75	丙辰 *ping-shên.*	5	65	25	85	45
丁亥 *ting-hai.*	34	94	54	14	74	丁巳 *ting-sze.*	4	64	24	84	44
戊子 *wu-tze.*	33	93	53	13	73	戊午 *wu-wu.*	3	63	23	83	43
己丑 *ki-ch'ow.*	32	92	52	12	72	己未 *ki-wei.*	2	62	22	82	42
庚寅 *kêng-yin.*	31	91	51	11	71	庚申 *kêng-shên.*	1	61	21	81	41
辛卯 *sin-mao.*	30	90	50	10	70	辛酉 *sin-yeo.*	*00	60	20	80	40
壬辰 *jên-shên.*	29	89	49	9	69	壬戌 *jên-sü.*	*99	59	19	79	39
癸巳 *kwei-sze.*	28	88	48	8	68	癸亥 *kwei hai.*	*98	58	18	78	38

* In last Cycle for 00, 99, 98, read A. D. 1, 2, 3.

COMPARATIVE TABLE OF THE CHINESE CYCLES POSTERIOR TO THE CHRISTIAN ERA

[Cycles 45 to 76, or A. D. 4 to 1923].

Cyclical Character.	Cycle Commencing.					Cyclical Character.	Cycle Commencing.				
	A. D. 4	A. D. 64	A. D.	A. D.	A. D.		A. D. 4	A. D. 64	A. D.	A. D.	A. D.
	304	364	124	184	244		304	364	124	184	244
	604	664	424	484	544		604	664	424	484	544
	904	964	724	784	844		904	964	724	784	844
	1204	1264	1024	1084	1144		1204	1264	1024	1084	1144
	1504	1564	1324	1384	1444		1504	1564	1324	1384	1444
	1804	1864	1624	1684	1744		1804	1864	1624	1684	1744
甲子 *kia-tze.*	04	64	24	84	44	甲午 *kia-wu.*	34	94	54	14	74
乙丑 *yih-ch'ow.*	05	65	25	85	45	乙未 *yih-wei.*	35	95	55	15	75
丙寅 *ping-yin.*	06	66	26	86	46	丙申 *ping-shên.*	36	96	56	16	76
丁卯 *ting-mao.*	07	67	27	87	47	丁酉 *ting-yeo.*	37	97	57	17	77
戊辰 *wu-shên.*	08	68	28	88	48	戊戌 *wu-sü.*	38	98	58	18	78
己巳 *ki-sze.*	09	69	29	89	49	己亥 *ki-hai.*	39	99	59	19	79
庚午 *kêng-wu.*	10	70	30	90	50	庚子 *kêng-tze.*	40	00	60	20	80
辛未 *sin-wei.*	11	71	31	91	51	辛丑 *sin-ch'ow.*	41	01	61	21	81
壬申 *jên-shên.*	12	72	32	92	52	壬寅 *jên-yin.*	42	02	62	22	82
癸酉 *kwei-yeo.*	13	73	33	93	53	癸卯 *kwei-mao.*	43	03	63	23	83
甲戌 *kia-sü.*	14	74	34	94	54	甲辰 *kia-shên.*	44	04	64	24	84
乙亥 *yih-hai.*	15	75	35	95	55	乙巳 *yih-sze.*	45	05	65	25	85
丙子 *ping-tze.*	16	76	36	96	56	丙午 *ping-wu.*	46	06	66	26	86
丁丑 *ting-ch'ow.*	17	77	37	97	57	丁未 *ting-wei.*	47	07	67	27	87
戊寅 *wu-yin.*	18	78	38	98	58	戊申 *wu-shên.*	48	08	68	28	88
己卯 *ki-mao.*	19	79	39	99	59	己酉 *ki-yeo.*	49	09	69	29	89
庚辰 *kêng-shên.*	20	80	40	00	60	庚戌 *kêng-sü.*	50	10	70	30	90
辛巳 *sin-sze.*	21	81	41	01	61	辛亥 *sin-hai.*	51	11	71	31	91
壬午 *jên-wu.*	22	82	42	02	62	壬子 *jên-tze.*	52	12	72	32	92
癸未 *kwei-wei.*	23	83	43	03	63	癸丑 *kwei-ch'ow.*	53	13	73	33	93
甲申 *kia-shên.*	24	84	44	04	64	甲寅 *kia-yin.*	54	14	74	34	94
乙酉 *yih-yeo.*	25	85	45	05	65	乙卯 *yih-mao.*	55	15	75	35	95
丙戌 *ping-sü.*	26	86	46	06	66	丙辰 *ping-shên.*	56	16	76	36	96
丁亥 *ting-hai.*	27	87	47	07	67	丁巳 *ting-sze.*	57	17	77	37	97
戊子 *wu-tze.*	28	88	48	08	68	戊午 *wu-wu.*	58	18	78	38	98
己丑 *ki-ch'ow.*	29	89	49	09	69	己未 *ki-wei.*	59	19	79	39	99
庚寅 *kêng-yin.*	30	90	50	10	70	庚申 *kêng-shên.*	60	20	80	40	00
辛卯 *sin-mao.*	31	91	51	11	71	辛酉 *sin-yeo.*	61	21	81	41	01
壬辰 *jên-shên.*	32	92	52	12	72	壬戌 *jên-sü.*	62	22	82	42	02
癸巳 *kwei-sze.*	33	93	53	13	73	癸亥 *kwei-hai.*	63	23	83	43	03

Appendix B.

CHRONOLOGICAL TABLES OF CHINESE DYNASTIES.

Dynastic Title.	Year of accession.	

Fabulous Period.

三皇紀 Age of the 3 Sovereigns or *San Hwang*.

盤古	P'an Ku		Fabulous periods comprising many thousands of years are assigned to these personages.	These 3, entitled the celestial sovereign, the terrestrial sovereign, & the human sovereign, are commonly called the Three Sovereigns.
天皇	T'ien Hwang	}		
地皇	Ti Hwang	}		
人皇	Jên Hwang	}		
巢有	Yew Ch'ao			
燧人	Sui Jên			

五帝紀 Age of the 5 Rulers or *Wu Ti*.

			B. C.	Dynastic, title.	appellation,
昊	伏羲氏	These are by some historians considered as the Five Rulers. Others exclude the last two, in favour of Yao and Shun.	2852	T'ai Hao,	Tu Hi.
炎帝	神農氏		2737	Yen Ti,	Shên Nung.
黃帝	有熊氏		2697	Hwang Ti,	Yew Hiung and Hien Yüan.
又	軒轅氏				
昊	稱天氏		2597	Shao Hao,	Kin T'ien.
顓頊	金陽氏		2513	Chwan Hü,	Kao Yang.
嚳	高辛氏		2435	Kuh,	Kau Sin.
帝摯			2365	Ti Chih.	
堯	陶唐氏		2357	Yao,	T'ao T'ang.
舜	有虞氏		2255	Shun,	Yew Yü.

Legendary Period.

夏紀 The Hia Dynasty.

禹	The Great Yü	2205

Dynastic Title.		Year of accession.	
		B. C.	
啟	K'i	2197	
太康	T'ai K'ang	2188	
仲康	Chung K'ang	2159	
相	Siang	2146	
少康	Shao K'ang	2079	
杼	Ch'u	2057	
槐	Hwai	2040	
芒	Mang	2014	
泄	Sieh	1996	
不降	Pu Kiang	1980	
扃	Kiung	1921	
廑	Kin	1900	
孔甲	K'ung Kia	1879	
皐	Kao	1848	
發	Fa	1837	
桀癸	Kieh Kwei	1818	

商紀 [卽殷紀] The Shang Dynasty.

also called the Yin Dynasty.

湯	T'ang	1766	Called Ch'êng T'ang, or T'ang the Completer.
成太甲	T'ai Kia	1753	
太沃丁	Yu Ting	1720	
太庚	T'ai Kêng	1691	
小甲	Siao Kia	1666	
雍己	Yung Ki	1649	
太戊	T'ai Mow	1637	
仲丁	Chung Ting	1562	
外壬	Wai Jên	1549	
河亶甲	Ho T'an Kia	1534	
祖乙	Tsu Yi	1525	
祖辛	Tsu Sin	1506	

Dynastic Title.		Year of accession.	
		B. C.	
沃甲	Yü Kia	1490	
祖丁	Tsu Ting	1465	
南庚	Nan Kêng	1433	
陽甲	Yang Kia	1408	
盤庚	P'an Kêng	1401	Changed the Dynastic title from Shang to Yin.
小辛	Siao Sin	1373	
小乙	Siao Yi	1352	
武丁	Wu Ting	1324	
祖庚	Tsu Kêng	1265	
祖甲	Tsu Kia	1258	
廩辛	Lin Sin	1225	
庚丁	Kêng Ting	1219	
武乙	Wu Yi	1198	
太丁	T'ai Ting	1194	
帝乙	Ti Yi	1196*	
紂辛	Show Sin	1154	

SEMI HISTORICAL AND HISTORICAL PERIOD.

周紀 The Chow Dynasty.

武王	Wu	1122	
成王	Ch'êng	1115	
康王	K'ang	1078	
昭王	Chao	1052	
穆王	Mu	1001	
共王	Kung	946	
懿王	Yi	934	
孝王	Hiao	909	
夷王	Yi	894	
厲王	Li	878	
宣王	Süan	827	

* Sic in manuscript, probably intended for 1191. *Ed.*

Dynastic Title.		Year of accession.	
		B. C.	
幽王	Yew	781	Historical Period commences.
平王	P'ing	770	
桓王	Hwan	717	
莊王	Chwang	696	
僖王	Hi	681	
惠王	Hwei	676	
襄王	Siang	651	
頃王	K'ing	618	
匡王	K'wang	612	
定王	Ting	606	
簡王	Kien	585	
靈王	Ling	571	
景王	King	544	
敬王	King	519	
元王	Yüan	475	
貞定王	Chêng Ting	468	
考王	K'ao	440	
威烈王	Wei Lieh	425	
安王	Ngan	401	
烈王	Lieh	375	
顯王	Hien	368	
愼靚王	Shên Tsing	320	
赧王	Nan	314	
東周君	Tung Chow Kiün	255	
秦紀 The Ts'in Dynasty.			
莊襄王	Chwang Siang Wong	249	
後秦紀 The Posterior Ts'in Dynasty.			
王政	Wang Chêng	246	
始皇帝	Shih Hwang Ti *	246	
二世皇帝	Urh Shih Hwang Ti	209	

* The reputed son of Chwang Siang Wang of Ts'in succeeded the latter in B.C. 246, and in B.C. 221 proclaimed himself universal Emperor. The year B.C. 221 is entitled the 26th year of his reign.

Dynastic Title or Miao Hao 廟號	Date of accession.	Title of Reign or Nien Hao 年號		Date of adoption of Nien Hao.
	B. C.			
漢紀 The Han Dynasty.				
高帝 Kao Ti, or 高祖 Kao Tsu	202	{Claimed the Empire from B. C. 206.		
惠帝 Hwei Ti	194			
高后 Kao How 呂氏 Lü Shih	188			
文帝 Wên Ti	179	元年	Yüan Nien	179
		後元	How Yüan	163
景帝 King Ti	156	元年	Yüan Nien	156
		中元	Chung Yüan	149
		後元	How Yüan	143
武帝 Wu Ti	140	建元	Kien Yüan	140
		元光	Yüan Kwang	134
		元朔	Yüan So	128
		元狩	Yüan Show	122
		元鼎	Yüan T'ing	116
		元封	Yüan Fêng	110
		太初	T'ai Ch'u	104
		天漢	T'ien Hân	100
		太始	T'ai Shih	96
		征和	Chêng Ho	92
		後元	How Yüan	88
昭帝 Chao Ti	86	始元	Shih Yüan	86
		元鳳	Yüan Fêng	80
		元平	Yüan P'ing	74
宣帝 Suan Ti	73	本始	Pên Shih	73
		地節	Ti Tsieh	69
		元康	Yüan K'ang	65
		神爵	Shên Tsio	61
		五鳳	Wu Fêng	57
		甘露	Kan Lu	53

Dynastic Title or Miao Hao 廟號	Date of accession.	Title of Reign or Nien Hao 年號	Date of adoption of Nien Hao.
	B. C.		B. C.
Süan Ti [continued]		黃龍 Hwang Lung	49
元帝 Yüan Ti	48	初元 Ch'u Yüan	48
		永光 Yung Kwang	43
		建昭 Kien Chao	38
		竟寧 King Ning	33
成帝 Ch'êng Ti	32	建始 Kien Shih	32
		河平 Ho P'ing	28
		陽朔 Yang So	24
		鴻嘉 Hung Kia	20
		永始 Yung Shih	16
		元延 Yüan Yen	12
		綏和 Sui Ho	8
哀帝 Ngai Ti	6	建平 Kien P'ing	6
		元壽 Yüan Show	2
	A. D.		A. D.
平帝 P'ing Ti	1	元始 Yüan Shih	1
孺子嬰 Ju Tz' Ying	6	居攝 Kü Shê	6
		初始 Ch'u Shih	8
僞新王莽 Wang Mang Styled Sin, [usurper]	9	始建國 Shih Kien Kwo	9
		天鳳 T'ien Fêng	14
		地皇 Ti Hwang	20
淮陽王 Hwai Yang Wang 帝玄 Ti Hiüan	23	更始 Kêng Shih	23

東漢紀 The Eastern Han Dynasty.

光武帝 Kwang Wu Ti	25	建武 Kien Wu	25
		中元 Chung Yüan	56
明帝 Ming Ti	58	永平 Yung P'ing	58
章帝 Chang Ti	76	建初 Kien Ch'u	76
		元和 Yüan Ho	84
		章和 Chang Ho	87

Dynastic Title or Miao Hao 廟號	Date of accession.	Title of Reign or Nien Hao 年號	Date of adoption of Nien Hao.
	A. D.		A. D.
和帝 Ho Ti	89	永元 Yung Yüan	89
		元興 Yüan Hing	105
殤帝 Shang Ti	106	平延 Yen P'ing	106
安帝 Ngan Ti	107	初永 Yung Ch'u	107
		初元 Yüan Ch'u	114
		寧永 Yung Ning	120
		光建 Kien Kwang	121
		光延 Yen Kwang	122
		永建 Kien Yung	126
順帝 Shun Ti	126	嘉陽 Yang Kia	132
		和永 Yung Ho	136
		安漢 Han Ngan	142
		康建 Kien K'ang	144
		嘉永 Yung Kia	145
冲帝 Ch'ung Ti	145	初本 Pên Ch'u	146
質帝 Chih Ti	146	和建 Kien Ho	147
桓帝 Hwan Ti	147	平和 Ho P'ing	150
		嘉元 Yüan Kia	151
		興永 Yung Hing	153
		壽永 Yung Show	155
		熹延 Yen Hi	158
		康永 Yung K'ang	167
靈帝 Ling Ti	168	寧建 Kien Ning	168
		平熹 Hi P'ing	172
		和光 Kwang Ho	178
		平中 Chung P'ing	184
獻帝 Hien Ti	190	平初 Ch'u P'ing	190
		平興 Hing P'ing	194
		安建 Kien Ngan	196
		康延 Yen K'ang	220

Dynastic Title or Miao Hao 廟號	Date of accession.	Title of Reign or Nien Hao 年號	Date of adoption of Nien Hao.
	A. D.		A. D.

EPOCH OF THE THREE KINGDOMS.

後漢紀 The Posterior Han Dynasty.

昭烈帝 Chao Lieh Ti	221	章武	Chang Wu	221
後帝 How Ti	223	建興	Kien Hing	223
		延熙	Yen Hi	238
		景耀	King Yao	258
		炎熙	Yen Hi	263

魏紀 The Wei Dynasty.

明帝 Ming Ti	227	太和	T'ai Ho	227
		青龍	Ts'ing Lung	233
		景初	King Ch'u	237
廢帝 Fei Ti	240	正始	Chêng Shih	240
		嘉平	Kia P'ing	249
少帝 Shao Ti	254	正元	Chêng Yüan	254
		甘露	Kan Lu	256
宋帝 Sung Ti	260	景元	King Yüan	260
		咸熙	Hien Hi	264

吳紀 The Wu Dynasty.

	229	黃龍	Hwang Lung	229
大帝 Ta Ti		嘉禾	Kia Ho	232
		赤烏	Ch'ih Wu	238
		太元	T'ai Yüan	251
	252	建興	Kien Hing	252
廢帝 Fei Ti		五鳳	Wu Fêng	254
		太平	T'ai P'ing	256

Dynastic Title or Miao Hao 廟號	Date of accession.	Title of Reign or Nien Hao 年號		Date of adoption of Nien Hao.
	A. D.			A. D.
景帝 King Ti	258	永安	Yung Ngan	258
末帝 Wei Ti	264	元興	Yüan Hing	264
		甘露	Kan Lu	265
		寶鼎	Pao T'ing	266
		建衡	Kien Hêng	269
		鳳凰	Fêng Hwang	272
		天冊	T'ien Ts'ê	275
		天璽	T'ien Si	276
		天紀	T'ien Ki	277
晉紀 The Tsin Dynasty.				
武帝 Wu Ti	265	泰始	Tai Shih	265
		咸寧	Hien Ning	275
		泰康	Tai K'ang	280
惠帝 Hwei Ti	290	永熙	Yung Hi	290
		元康	Yüan K'ang	291
		永康	Yung K'ang	300
		永寧	Yung Ning	301
		太安	T'ai Ngan	302
		永興	Yung Hing	304
		光熙	Kwang Hi	306
懷帝 Hwai Ti	307	永嘉	Yung Kia	307
愍帝 Min Ti	313	建興	Kien Hing	313
元帝 Yüan Ti	317	建武	Kien Wu	317
		大興	Ta Hing	318
		永昌	Yung Ch'ang	322
明帝 Ming Ti	323	太寧	T'ai Ning	323
成帝 Ch'êng Ti	326	咸和	Hien Ho	326
		咸康	Hien K'ang	335
康帝 K'ang Ti	343	建元	Kien Yüan	343
穆帝 Mu Ti	345	永和	Yung Ho	345
		升平	Shêng P'ing	357

Dynastic Title or Miao Hao 廟號	Date of accession.	Title of Reign or Nien Hao 年號		Date of adoption of Nien Hao.
	A. D.			A. D.
哀帝 Ngai Ti	362	隆和	Lung Ho	362
		興寧	Hing Ning	363
帝奕 Ti Yi	366	太和	T'ai Ho	366
簡文帝 Kien Wên Ti	371	咸安	Hien Ngan	371
孝武帝 Hiao Wu Ti	373	寧康	Ning K'ang	373
		太元	T'ai Yüan	376
安帝 Ngan Ti	397	隆安	Lung Ngan	397
		元興	Yüan Hing	402
		義熙	I Hi	405
恭帝 Kung Ti	419	元熙	Yüan Hi	419

南北朝紀 The Northern Sung Dynasty, Also styled The Period of the Northern and Southern rule.

武帝 Wu Ti	420	永初	Yung Ch'u	420
少帝 Shao Ti 營陽王 Ying Yang Wang	423	景平	King P'ing	423
文帝 Wên Ti	424	元嘉	Yüan Kia	424
孝武帝 Hiao Wu Ti	454	孝建	Hiao Kien	454
		大明	Ta Ming	457
廢帝 Fei Ti	465	景和	King Ho	465
明帝 Ming Ti	465	泰始	Tai Shih	465
		泰豫	Tai Yü	472
蒼梧王 Ts'ang Wu Wang 主昱 Chu Li	473	元徽	Yüan Hwei	473
順帝 Shun Ti	477	昇明	Shêng Ming	477

齊紀 The Ts'i Dynasty.

	479	建元	Kien Yüan	479
高帝 Kao Ti	483	永明	Yung Ming	483
武帝 Wu Ti				

Dynastic Title or Miao Hao 廟號	Date of accession.	Title of Reign or Nien Hao 年號		Date of adoption of Nien Hao.
	A. D.			A. D.
明帝 Ming Ti	494	建武	Kien Wu	494
		永泰	Yung Tai	498
東昏侯 Tung Hwên How	499	永元	Yung Yüan	499
和帝 Ho Ti	501	中興	Chung Hing	501
梁紀 The Liang Dynasty.				
武帝 Wu Ti	502	天監	T'ien Kien	502
		普通	P'u T'ung	520
		大通	Ta T'ung	527
		中大通	Chung Ta T'ung	529
		大同	Ta T'ung	535
		太清	T'ai Ts'ing	547
簡文帝 Kien Wên Ti	550	大寶	Ta Pao	550
元帝 Yüan Ti	552	承聖	Ch'êng Shêng	552
敬帝 King Ti	555	紹泰	Shao Tai	555
		太平	T'ai P'ing	556
陳紀 The Ch'ên Dynasty.				
武帝 Wu Ti	557	永定	Yung Ting	557
文帝 Wên Ti	560	天嘉	T'ien Kia	560
		天康	T'ien K'ang	566
臨海王 Lin Hai Wang	567	光大	Kwang Ta	567
宣帝 Süan Ti	569	大建	Ta Kien	569
後主 How Chu	583	至德	Chih Tê	583
		禎明	Chêng Ming	587
隋紀 The Sui Dynasty.				
文帝 Wên Ti	589	開皇	K'ai Hwang	589
		仁壽	Jên Show	601
煬帝 Yang Ti	605	大業	Ta Yeh	605
恭帝 Kung Ti	617	義寧	I Ning	617
		皇泰	Hwang Tai	618

Dynastic Title or Miao Hao 廟號	Date of accession.	Title of Reign or Nien Hao 年號	Date of adoption of Nien Hao.
	A. D.		A. D.

唐紀 The T'ang Dynasty.

高祖	Kao Tsu	618	武德	Wu Tê	618
太宗	T'ai Tsung	627	貞觀	Chih Kwan	627
高宗	Kao Tsung	650	永徽	Yung Hwei	650
			顯慶	Hien K'ing	656
			龍朔	Lung So	661
			麟德	Lin Tê	664
			乾封	K'ien Fêng	666
			總章	Tsung Chang	668
			咸亨	Hien Hiang	670
			上元	Shang Yüan	674
			儀鳳	I Fêng	676
			調露	Tiao Lu	679
			永隆	Yung Lung	680
			開耀	K'ai Yao	681
			永淳	Yung Shun	682
			弘道	Hung Tao	683
中宗	Chung Tsung	684	嗣聖	Sz' Shêng	684
武后	Wu How [the Empress Wu]	684	光宅	Kwang Tsê	684
			垂拱	Chui Kung	685
			永昌	Yung Ch'ang	689
			載初	Ts'ai Ch'u	689
			天授	T'ien Show	690
			如意	Ju I	692
			長壽	Ch'ang Show	692
			延載	Yen Tsai	694
			證聖	Tiao Shêng	695
			天冊萬歲	T'ien Ts'ê Wan Sui	695
			萬歲通天	Wan Sui T'ung T'ien	696

Dynastic Title or Miao Hao 廟號	Date of accession.	Title of Reign or Nien Hao 年號		Date of adoption of Nien Hao.
	A. D.			A. D.
The Empress Wu [continued]		神功	Shên Kung	697
		聖曆	Shêng Li	698
		久視	Kiu Shih	700
		大足	Ta Tsu	701
		長安	Ch'ang Ngan	701
		龍神	Lung Shên	705
中宗 Chung Tsung [resumed the Throne]				
		景龍	King Lung	707
睿宗 Jui Tsung	710	景雲	King Yün	710
		太極	T'ai Ki	712
		延和	Yen Ho	712
玄宗 Hiüan Tsung [sometimes written 元宗 Yüan Tsung]	713	開元	K'ai Yüan	713
		天寶	T'ien Pao	742
肅宗 Su Tsung	756	至德	Chih Tê	756
		乾元	K'ien Yüan	758
		上元	Shang Yüan	760
		寶應	Pao Ying	762
代宗 Tai Tsung	763	廣德	Kwang Tê	763
		永泰	Yung Tai	765
		大曆	Ta Li	766
德宗 Tê Tsung	780	建中	Kien Chung	780
		興元	Hing Yüan	784
		貞元	Chêng Yüan	785
順宗 Shun Tsung	805	永貞	Yung Chêng	805
憲宗 Hien Tsung	806	元和	Yüan Ho	806
穆宗 Mu Tsung	821	長慶	Ch'ang K'ing	821
敬宗 King Tsung	825	寶曆	Pao Li	825
文宗 Wên Tsung	827	太和	T'ai Ho	827
		開成	K'ai Ch'êng	836
武宗 Wu Tsung	841	會昌	Hwei Ch'ang	841
宣宗 Süan Tsung	847	太中	T'ai Chung	847

Dynastic Title or Miao Hao 廟號		Date of accession.	Title of Reign or Nien Hao 年號		Date of adoption of Nien Hao.
		A. D.			A. D.
懿宗	I Tsung	860	咸通	Hien T'ung	860
僖宗	Hi Tsung	874	乾符	K'ien Fu	874
			廣明	Kwang Ming	880
			中和	Chung Ho	881
			光啓	Kwang K'i	885
昭宗	Chao Tsung	889	文德	Wên Tê	888
			龍紀	Lung Ki	889
			大順	Ta Shun	890
			景福	King Fu	892
			乾寧	K'ien Ning	894
			光化	Kwang Hwa	898
			天復	T'ien Fu	901
			天祐	T'ien Yew	904
昭宣帝	Chao Süan Ti	905	天祐	T'ien Yew	905
後梁紀 The Posterior Liang Dynasty.					
太祖	T'ai Tsu	907	開平	K'ai P'ing	907
			乾化	K'ien Hwa	911
均王	Kiün Wang	915	貞明	Chêng Ming	915
			龍德	Lung Tê	921
後唐紀 The Posterior T'ang Dynasty.					
莊宗	Chwang Tsung	923	同光	T'ung Kwang	923
明宗	Ming Tsung	926	天成	T'ien Ch'êng	926
			長興	Ch'ang Hing	930
閔帝	Min Ti	934	應順	Ying Shun	934
潞王	Lu Wang	934	清泰	Ts'ing Tai	934
後晉紀 The Posterior Tsin Dynasty.					
高祖	Kao Tsu	936	天福	T'ien Fu	936
齊王	Ts'i Wang	954	開運	K'ai Yün	954

Dynastic Title or Miao Hao 廟號		Date of accession. A. D.	Title of Reign or Nien Hao 年號		Date of adoption of Nien Hao. A. D.
後漢紀 The Posterior Han Dynasty.					
高祖	Kao Tsu	947	乾祐	K'ien Yew	947
隱帝	Yin Ti	948	乾祐	K'ien Yew	948
後周紀 The Posterior Chow Dynasty.					
太祖	T'ai Tsu	951	廣順	Kwang Shun	951
世宗	Shih Tsung	954	顯德	Hien Tê	954
恭帝	Kung Ti	959	顯德	Hien Tê	959
宋紀 The Sung Dynasty.					
太祖	T'ai Tsu	960	建隆	Kien Lung	960
			乾德	K'ien Tê	963
			開寶	K'ai Pao	968
太宗	T'ai Tsung	976	太平興國	T'ai P'ing Hing Kwo	976
			雍熙	Yung Hi	984
			端拱	Twan Kung	988
			淳化	Shun Hwa	990
			至道	Chih Tao	995
眞宗	Chên Tsung	998	咸平	Hien P'ing	998
			景德	King Tê	1004
			大中祥符	Ta Chung Siang Fu	1008
			天禧	T'ien Hi	1017
			乾興	K'ien Hing	1022
仁宗	Jên Tsung	1023	天聖	T'ien Shêng	1023
			明道	Ming Tao	1032
			景祐	King Yew	1034
			寶元	Pao Yüan	1038
			康定	K'ang Ting	1040

Dynastic Title or Miao Hao 廟號	Date of accession.	Title of Reign or Nien Hao 年號	Date of adoption of Nien Hao.
	A. D.		A. D.
Jên Tsung [continued]		慶曆 K'ing Li	1041
		皇祐 Hwang Yew	1049
		至和 Chih Ho	1054
		嘉祐 Kia Yew	1056
英宗 Ying Tsung	1064	治平 Chih P'ing	1064
神宗 Shên Tsung	1068	熙寧 Hi Ning	1068
		元豐 Yüan Fêng	1078
哲宗 Chê Tsung	1086	元祐 Yüan Yew	1086
		紹聖 Shao Shêng	1094
		元符 Yüan Fu	1098
徽宗 Hwei Tsung	1101	建中靖國 Kien Chung Tsing Kwo	1101
		崇寧 Ts'ung Ning	1102
		大觀 Ta Kwan	1107
		政和 Chêng Ho	1111
		重和 Chung Ho	1118
		宣和 Süan Ho	1119
欽宗 K'in Tsung	1126	靖康 Tsing K'ang	1126

南宋紀 The Southern Sung Dynasty.

高宗 Kao Tsung	1127	建炎 Kien Yen		1127
		紹興 Shao Hing		1131
孝宗 Hiao Tsung	1163	隆興 Lung Hing		1163
		乾道 K'ien Tao		1165
		淳熙 Shun Hi		1174
光宗 Kwang Tsung	1190	紹熙 Shao Hi		1190
寧宗 Ning Tsung	1195	慶元 K'ing Yüan		1195
		嘉泰 Kia Tai		1201
		開禧 K'ai Hi		1205
		嘉定 Kia Ting		1208
	1225	寶慶 Pao K'ing		1225
理宗 Li Tsung		紹定 Shao Ting		1228

Dynastic Title or Miao Hao 廟號	Date of accession.	Title of Reign or Nien Hao 年號	Date of adoption of Nien Hao.
	A. D.		A. D.
Li Tsung [continued]		端平 Twan P'ing	1234
		嘉熙 Kia Hi	1237
		淳祐 Shun Yew	1241
		寶祐 Pao Yew	1253
		開慶 K'ai K'ing	1259
		景定 King Ting	1260
度宗 Tu Tsung	1265	咸淳 Hien Shun	1265
恭帝 Kung Ti	1275	德祐 Tê Yew	1275
端帝 Twan Ti	1276	景炎 King Yen	1276
帝昺 Ti Ping	1278	祥興 Siang Hing	1278

元紀 The Yüan Dynasty.

世祖 Shih Tsu	1280	至元 Chih Yüan	1280
成宗 Ch'êng Tsung	1295	元貞 Yüan Chêng	1295
		大德 Ta Tê	1297
武宗 Wu Tsung	1308	大至 Chih Ta	1308
仁宗 Jên Tsung	1312	皇慶 Hwang K'ing	1312
		延祐 Yen Yew	1314
英宗 Ying Tsung	1321	至治 Chih Chih	1321
泰定帝 Tai Ting Ti	1324	泰定 Tai Ting	1324
		致和 Chih Ho	1328
明宗 Ming Tsung	1329	天曆 T'ien Li	1329
文帝 Wên Ti	1330	天曆 T'ien Li	1330
		至順 Chih Shun	1330
順帝 Shun Ti	1333	元統 Yüan T'ung	1333
		至元 Chih Yüan	1335
		至正 Chih Chêng	1341

明紀 The Ming Dynasty.

太祖 T'ai Tsu	1368	洪武 Hung Wu	1368
惠帝 Hwei Ti	1399	建文 Kien Wên	1399

Dynastic Title or Miao Hao 廟號		Date of accession.	Title of Reign or Nien Hao 年號		Date of adoption of Nien Hao.
		A. D.			A. D.
成祖	Ch'êng Tsu	1403	永樂	Yung Lo	1403
仁宗	Jên Tsung	1425	洪熙	Hung Hi	1425
宣宗	Süan Tsung	1426	宣德	Süan Tê	1426
英宗	Ying Tsung	1436	正統	Chêng T'ung	1436
代宗 Tai Tsung	景帝 King Ti	1450	景泰	King Tai	1450
英宗 [resumed government]	Ying Tsung	1457	天順	T'ien Shun	1457
憲宗	Hien Tsung	1465	成化	Ch'êng Hwa	1465
孝宗	Hiao Tsung	1488	弘治	Hung Chih	1488
武宗	Wu Tsung	1506	正德	Chêng Tê	1506
世宗	Shih Tsung	1522	嘉靖	Kia Tsing	1522
穆宗	Mu Tsung	1567	隆慶	Lung K'ing	1567
神宗	Shên Tsung	1573	萬歷	Wan Li	1573
光宗	Kwang Tsung	1620	泰昌	Tai Ch'ang	1620
熹宗	Hi Tsung	1621	天啟	T'ien K'i	1621
莊烈帝	Chwang Lieh Ti	1628	崇禎	Ts'ung Chêng	1628
大清朝 The Ts'ing Dynasty.					
肇祖原皇帝* Chao Tsu Yüan					
興祖直皇帝* Hing Tsu Chih					
景祖翼皇帝* King Tsu Yih					
顯祖宣皇帝 Hien Tsu Süan		1583			
太祖高皇帝 T'ai Tsu Kao		1616	天命	T'ien Ming	1616
太宗文皇帝 T'ai Tsung Wên		1627	天聰 崇德	T'ien Tsung Ts'ung Tê	1627 1636

* These were in reality merely Manchow chieftains, upon whom titular honours were conferred by their descendants after the conquest of China.

Dynastic Title or Miao Hao 廟號	Date of accession.	Title of Reign or Nien Hao 年號		Date of adoption of Nien Hao.
	A. D.			A. D.
世祖章皇帝 Shih Tsu Chang	1644	順治	Shun Chih	1644
聖祖仁皇帝 Shêng Tsu Jên	1662	康熙	K'ang Hi	1662
世宗憲皇帝 Shih Tsung Hien	1723	雍正	Yung Chêng	1723
高宗純皇帝 Kao Tsung Shun	1736	乾隆	K'ien Lung	1736
仁宗睿皇帝 Jên Tsung Jui	1796	嘉慶	Kia K'ing	1796
宣宗成皇帝 Süan Tsung Ch'êng	1821	道光	Tao Kwang	1821
文宗顯皇帝 Wên Tsung Hien	1851	咸豐	Hien Fêng	1851
The reigning Sovereign	1862	同治	T'ung Chih	1862

THE Prince of Kan to his younger brother the English Interpreter Forrest. In reply to your note, I now enclose the Sign Manual of the Heavenly King, written with the vermillion pencil on yellow satin in ten characters, also four packages of the Sacred Books .... May your promotion be lofty and speedy!

NANKING, *August 4th*, 1861.

ARTICLE IX.

THE CHRISTIANITY OF HUNG TSIU TSUEN, A REVIEW OF TAEPING BOOKS.

By ROBERT JAMES FORREST, Esq.,

H. B. M.'s Acting Consul.

Ningpo.

In considering the Taeping rebellion I conceive this to be the time to store up materials for after use. Passions and prejudices are too strong now on matters Chinese to hope for a true or impartial history of this great omen, this wonderful rise and fall of a power that swept through the fairest portion of the Empire like a flight of locusts and cost twenty one millions of lives before its downfall. As far as Shanghai is concerned the magnitude of the great rebellion has been entirely lost sight of, and probably all that interests, or has interested, residents here is the history of Gordon's campaign. The fall and recapture of little towns like Kading and Taitsan excited more attention among foreigners than the fall of provincial cities, the subjugation of distant provinces, and the fate of the southern capital itself. The memory even of the Kiangsu campaign is fast dying out, and the monument on the Bund will soon be the only sign left wherewithal to call to mind the exciting times of the Taeping campaign.

Should some future diligent historian of China trouble himself to wade through contemporaneous records in order to arrive at the facts of the rebellion, especially as regards the ultimate interference of foreign governments, he will not fail to be a little amused at the alternate favour and hatred with which the Taeping movement was regarded. While rebellion was confined to the southern provinces of China and did not much interfere with foreign trade, foreign sympathy, if I may judge from published papers, was with the rebels. Our difficult position at Canton, the obstinacy and corruption of the mandarins, and the fast increasing belief that oppressed nationalities have a divine right to rebel, all tended to a favourable view of the movement. Then came our war, and with it many years of obstinate and senseless hatred of every thing connected with the existing government. Our difficulty became Taeping opportunity, and while we were

marching against the Imps in the north, the half starved and nearly conquered rebels made a grand dash for Chehkiang and Kiangsu. With a stroke of military genius not sufficiently known or appreciated, Chung Wang by threatening Hangchow compelled his foe to raise the siege of Nanking, and the cities along the Grand Canal soon changed masters. But about the same time that the rebels came against Shanghai the Taku forts were taken, and affairs in the north soon began to mend. The defence of Shanghai by the allies was the death blow of the kingdom of Great Peace. All former friendliness to the rebel cause changed; the abuse so freely heaped on their adversaries fell upon them, and the forces of England returning from the northern campaign were set in motion against their late enemies' enemy. Foreign residents, especially in Shanghai, were for putting to the fire and sword every thing rebel, forgetting altogether that in so doing they were killing the goose that laid the golden egg —that the extraordinary prosperity of Shanghai at that time was caused principally by the rebellion. In the pages of the local press from 1860 until 1864 is to be found every epithet of abuse known to a language, not at all poor in such expressions, all directed against the rebels, and yet if it went to the vote to-morrow how many foreigners would not wish them back again?

So if I were to tell that order did really reign at Nanking,—very like the Warsaw article it is true, but still order,—that there were some uncommonly clever generals among T'ien Wang's officers, notably the Chung, Ying, and Mo Wangs—that in places not actually the seat of war the ground was well cultivated —that the conduct of the Taeping troops was not one bit worse than that of the imperialists,—and that the inhabitants of such towns as Shaoshing and Hangchow have asserted that their lot under Ch'angmao rule was infinitely better than their unhappy fate when those cities were recovered and fell for a time into the hands of barbarian officers;—if I stated these things, with every proof, I should be reviled as a rebel and a speaker of blasphemy against the brilliant political dawn now spreading over the empire. I never saw a foreigner return from Soochow (his excellent sport the result of the late troubles) who did not indulge in strong invectives against the rebels for the destruction of the enormous suburbs of that city. And yet the rebels burnt neither Soochow nor its suburbs. The imperialist soldiery did it

seven days before Chung Wang left Woosi! But facts, no matter how recorded, never overthrow prejudice. The suburbs of Soochow will always rise in judgment against the Ch'angmaos though they were innocent of their destruction; and my experiences of Taeping rule, although the result of a long residence at the Capital, will never be favourably regarded, if in any way opposed to existing ideas. But there is one subject on which I can safely speak, and that is the theology of T'ien Wang and his followers. If any one disagrees with me I can refer him to my sources of information—the books of the heavenly dynasty published by authority at Nanking. These books were presented to me by command of his Celestial Majesty through the agency of the well known prince of Kan, who after teaching the Christian religion in the interests of the Baptists or Independents at Shanghai, became a prince of Taepingdom, and was shot the other day on the walls of Changchow-foo.

The early theology of the Taepings, as far as limited sources of information would admit, has already been excellently and ably described by writers and sinologues. Their essays and translations might have convinced theologians that but little could be hoped for from the so-called inspiration of T'ien Wang; and missionaries might have been taught to despair of converting to any known or rational sect of the Christian faith one who was the uterine brother and equal of Christ, and to whom was confided by the Almighty personally the interpretation and establishment of the faith. Such however was not the result of our earliest knowledge of the Taeping religious leanings: for I call to mind (whatever may be their opinions now) that in 1859, 60, 61 and 62 there existed a large party who believed the rebel movement to be essentially a Christian one, and one through the agency of which, if successful, the darkness covering China was to be changed into the light of true religion. And it is very curious that a movement which in this our revolutionizing nineteenth century could most easily be defended on a dozen strong, almost unanswerable, grounds, was defended only on its weakest and most ludicrous point, its grotesque Christianity! On the capture of the cities on the canal, missionaries proceeded to Soochow, and were well received by the chiefs, who listened with patience to their messages, gave them no unfavourable opinion of their spiritual condition, and secretly looked on them as political agents. The invitation sent by Hung-tsiu-tsuen to the Reve-

rend Issachar Roberts, his old school master, to proceed to Nanking, where he was made a Heaven's Righteousness (T'ien-i) and had some temporal advantages thrust upon him, excited the emulation, perhaps the envy, of other foreign religionists. The new vineyard was tried by several excellent ministers, but found to be barren. T'ien Wang as well as his chiefs expected from their foreign visitors temporal as well as spiritual advantages. If the tracts and books bestowed on the celestial soldiery, after yielding up the instruction contained in them, were converted into cartridges, copper caps were still required to make them ultimately useful, and these the foreign guests were unable and unwilling to give. So the heavenly capital was soon deserted by all missionaries except Roberts, whose gifts being purely theological, and not calculated to instruct either soldiers or people in their temporal avocations, were soon neglected. He became a burden to his supporters, and his ultimate flight to a British gun-boat, when supplies ceased, is a well known story. Had a man of hard worldly talent occupied Roberts' place and original influence at Nanking, the fate of the rebels might have been other than it was. Had the chiefs been taught to avoid foreigners and to keep their weapons in better order, to make their soldiers drill and not devastate the country, T'ien Wang might still be fulminating his doxologies from Nanking.

According to the official catalogue the books published by authority at Nanking up to 1852 were twenty eight in number and consist of forty eight volumes. I have the whole of them with the exception of the Trimetrical classic, and one volume of the New Testament. They are very badly printed on bad paper, but this is hardly to be wondered at. The style is execrable, and in places it is impossible to trace any meaning in the text. Characters are falsely used, some only half cut, or plainly mark the southern and lowly origin of T'ien Wang and the want of education in his officers. The reading is dreary in the extreme. There is no imagination, no imagery displayed, even in the record of visions and visits to heaven. The rhythm sometimes attempted is suggested by Gutzlaff's Translation of the Bible, and the poetry is feeble beyond expression. It is nothing but a perpetual ringing of changes on the Doxology, with Tung Wang for Holy Ghost, and the assertion that the Heavenly Father has sent Hung to rule over the hills and streams, and spread Great Peace over the earth! I became possessed while at Nanking of a

manuscript, in which was recorded day by day the edicts, promotions, and visions, of the Heavenly King and his son the Junior Lord. This book commences with the Chinese New Year in 1861 and finishes with an ode about the end of May of the same year. It is curious as probably the last work dictated by the chief, for in May 1861 proclamations were issued in Nanking informing the myriad places that God had appeared to His Majesty's wife and informed her that her husband was to work no more. This book from which I shall make extracts below is more carelessly written than any work I have seen from Nanking, in fact a considerable falling off is observable in the later Taeping books from those first published, in which at all events some little care is to be distinguished.

T'ien Wang asserts that his heavenly father frequently visited him on earth, and in the "T'ien fu hsia fan chao shu"—the "book concerning the descent of the Heavenly Father," full particulars are given of one of those divine visits, which will not fail to amuse, if they do not edify, my readers. In December 1852, the northern prince and followers went to pay a visit of congratulation to the eastern prince Tsêng, and after they had retired God came down and spoke to Yang-shui-chao, Hu-chü-mei and two other women apparently relations of T'ien Wang and female ministers of state, desiring them through Tung Wang to tell the chief that a little less severity ought to be exercised with regard to the women in the great Dragon Palace. So the gong was beaten, and Tung Wang having heard the women's tale announced his intention of going to the celestial court to tell the heavenly commands. I quote the result from the published notes of a well-known sinologue. "The Eastern Prince then commanded the Northern Prince and all the officers to go first to court. The Northern Prince was about to proceed thither accordingly, when he suddenly addressed Chin-teh-sung, the chamberlain of the northern palace, saying: 'Do you go quickly to the Eastern Princes' sedan, and request the favour of his instructions as to whether we are first to go to the hall of audience or to enter straight into the door of the palace.' The chamberlain, receiving this charge, went at once to the sedan of the Eastern Prince and requested one of his servants to obtain and communicate to him the wishes of the Eastern Prince. The servant said, 'The Eastern Prince is enjoying repose in his sedan, I dare not disturb him.' The chamberlain of the northern palace,

hearing that the Eastern Prince was enjoying repose, did not presume to repeat the enquiry, but hastened back to inform the Northern Prince, who thereupon hastily descended from his sedan and proceeded on foot to the middle of the road, where he knelt down and enquired saying.—'Has the Heavenly Father troubled himself to come down into the world again?' To which the Heavenly Father replied in the affirmative, and told the Northern King to convey the sedan into the hall of audience. The Northern Prince replied 'I will obey the injunctions of the Heavenly Father.' Whereupon he hastily ordered the female officers of the celestial court to inform the Celestial King of the circumstance; which done he together with the ministers of state conveyed the sedan of the Eastern Prince within the gate of the palace. The celestial king Hung having heard the message hastily went on foot to the second gate of the palace to receive the Heavenly Father. The Heavenly Father on his arrival was angry with Hung saying, Tsiu-tsuen, you are very much in fault, are you aware of it? The Celestial King kneeling down with the Northern Prince replied saying, 'Your unworthy son knows that he is in fault and begs the Heavenly Father graciously to forgive him.' The Heavenly Father then said with a loud voice. 'Since you acknowledge your fault you must be beaten with forty blows.' Then the Northern Prince and officers prostrated themselves on the ground and weeping implored the Heavenly Father to manifest his favour and remit the punishment which their master had deserved, offering to receive the blows themselves. The Celestial King replied, 'Your unworthy son will comply with your requisition' and prostrated himself to receive the blows. The Heavenly Father then said, 'Since you have obeyed the requisition I shall not inflict the blows. But the women Yang-chang-mei and Shih-luy-lang must be sent to the palace of the Eastern Prince; with regard to other matters you must wait till your brother Tsêng sends up his reports. I shall now go back to heaven,' and the Heavenly Father returned to heaven. The Eastern Prince afterwards awoke from his trance and remarked on hearing that the Heavenly Father had again come down, 'Has he indeed, truly he gives himself a great deal of trouble on our account.'" The machinery of these celestial visitations was simple in the extreme. A western pretender would have scorned such a childish mode of deception. We may smile at the idea of Ting, Prince of the East, speaking in the name of the Almighty,

and telling his chief to wait until his brother Tsêng (himself) sent up his reports; but the captains of the empire of Great Peace knew that the inevitable sword was ready to cure all doubters, and quietly accepted, if they did not believe, the manifestations. The reports of Tsêng, given by him to the T'ien Wang by divine direction, reveal an awful state of things in the imperial palace. Here is a portion of the book concerning the descent of the Heavenly Father, which I again take from the notes before referred to: "through the grace of the Heavenly Father the number of ladies at the court is very great.....you should not kill for every trifling offence. When the ladies wait upon you, my elder brother, it is of course their duty, but sometimes they may be apt to excite your righteous indignation, in which case you must treat them gently, and *not kick them with your boots on;* for if you kick them with your boots on it may be that some of the ladies are in such a state as to call for the congratulations of their friends, and then you will interfere with the kind intentions of your Heavenly Father who loves to foster human life. Further when any of the ladies are in the state above alluded to, it would be as well to manifest a little gracious consideration and allow them to rest from their labours. Such a treatment would be proper, and if still any of the ladies should commit any trifling fault it would be as well to excuse them from being beaten with the bamboo!," I was told by Chung Wang's brother in Nanking that T'ien Wang murdered such wives as offended him, and this extract places the matter beyond much doubt. Of a verity a heavenly king ruling a heavenly dynasty and entitled to the tender spiritual cares of foreign missionaries! Further on in the same book Tung Wang gives some hints concerning the education of the Junior Lord. He tells T'ien Wang that if not looked after the boy will break some of the splendid toys given to him by God the Father! that if he goes out in the rain he will get wet. He also calls his Celestial Majesty's attention to the dragons painted on the walls of the palace and engraved on the utensils used therein, stating that they are precious dragons, and not imps, which the chief is commissioned to destroy. The Celestial King replied. "Your observation, brother Tsêng, is correct. Formerly when our Celestial Brother came down upon the Ping-tsai hill he commanded me saying dragons are fiends. I then asked my Celestial Brother. 'Is the dragon depicted on the hall of the golden dragon also to be considered a fiend?' To

which my brother replied. 'The dragon depicted in the golden dragon hall is a very precious emblem and not a fiend!'" Here is a vision recorded by the king's brothers in "The book of the evidence of what the prince's brothers saw with their eyes and heard with their ears." "At 11 o'clock on 1st day of 3rd month of T'ien-yiu year we (Jên-fah and Jên-tah) were thanking God and the Heavenly Brother, who bestowing heavenly grace upon us deputed heavenly officers and hosts to accompany our true sacred lord the T'ien Wang to heaven, and our lord has vouched for the facts. Musicians with harps, reeds, drums and all manner of music accompanied him. The thunder went before his face like a cock. The celestial host conveyed his chariot by the great road in the east up to heaven. On each side of the gates of heaven were innumerable beautiful damsels to receive him. He dwelt there two days and then descended, and informed us and the Junior Lord saying: 'I shall rule all people in the myriad places. The bounty of the earth is for me to eat. I am indeed the son of God the Heavenly Father!' A few days afterwards he again went to heaven and did battle with the imps and devils, and while slaying the imps and devils he exclaimed, 'O my brother help me,' and by Ako* he meant the Heavenly Brother. He again called out for the officers of Yang's household and for Chao-yuen-lang, saying Chao was sent as an example. God then gave him the seven characters 天王大道君王全 T'ien Wang ta tao keuen wang chuen. He then went up into the highest heaven and slew one by one the imps and cast them into hell. Our lord has verified this and says: What time I was slaying the imps God was behind my brother, who was behind me. We three Lords led on the hosts and pursued the imps and fiends, God then gave me a seal and I slew the imps and stayed not my hand; my brother then took the seal and shewed it to the imps who ran away, and the seal is that wherewith the Lord made heaven and earth. Sometimes God took the seal, sometimes Christ, and sometimes I myself. So the seal is common to us. Wherever that seal was taken the imps fled and our Lord looked and lo! eminent relations flocked and congratulated him, and wicked men came who were envious of him and abused him with a loud voice.....Then the Heavenly King reviled the devils saying: 'I am truly the heavenly son by

* In Cantonese the expression used when speaking to an older brother.

heaven's command for the extirpation of evil and the exaltation of the good. Dont you know it. Depart quickly! Dare you look upon me. I am king in heaven and earth and have caught you imps and devils as in a net, you cannot escape my hands.' Then he sang the ten odes of great luck." These odes follow but I will not attempt them.

It was hardly to be supposed that Hung-tsiu-tsuen would long tolerate the advice of the Eastern Prince when he began to intrigue in the affairs of the palace, although such advice might have been inspired by the Heavenly Father himself. So on a certain night soldiers were ordered to Tung Wang's quarters, his head was cut off, and his immediate followers slain. His palace was razed to the ground, and his name was no longer to be mentioned in the heavenly capital. By proclamation the heavenly king announced that the unfortunate victim having "Attained merit deep as the azure heaven had suffered for the sins of the world and gone to the skies!" After Tung Wang's death the king and his wives alone appear to have been recipients of heavenly visits. Hung appears to have found too much danger in the outspoken inspirations of the Eastern King to allow any other follower to pretend to direct divine favour, and his chiefs, mindful of the fate of him who stood second in the empire, did not care to aspire to miraculous power.

For some years after this murder T'ien Wang was quiescent and gradually lost ground. His grand northern campaign against the imps' den as he called the province of Chili had ended in disaster. The last man of the great army which had marched full of hope from Nanking to take Peking, and utterly exterminate the imps, had fallen by the Tartar sword. The rowdies of Shanghai had guided square rigged ships against Chinkeang and the imps themselves had cast a wall about the heavenly capital. Foreigners troubled themselves but little about the heavenly doings, and affairs seemed hopeless. Yet according to Chung Wang's account the chief was always cheerful and confident that his Heavenly Father would vouchsafe ultimate deliverance. The deliverance came and the Heavenly King's success once more astonished China, and drew upon him the wonder and attention of foreign nations. As city after city fell, the cause carried with it belief. Missionaries explained to the chiefs the sympathy of western nations, and plenty came simultaneously with foreigners to the half starved capital, where Hung

amused himself with controversy with foreigners, and the gospel according to Issachar Roberts. By degrees as the full religious aspirations of the king were manifested his friends became alarmed for his spiritual condition. Fearing that his ideas on the subject of the Trinity and the procession of the Holy Ghost, were a little misty, some well meaning foreign brethren prepared the Athanasian creed for his instruction. His majesty acknowledged with gratitude, and dollars, the tender pains of his brethren, but told them that as he had been to heaven and they had not, they could not possibly know as much as himself concerning the Godhead. It must have amused the old heretic to see with what reluctance his foreign brothers saw the reality of Taeping matters, and how unwilling they were to leave the new field. I remember one night near Soochow an earnest missionary talking to a real Kwangsi rebel who had intruded into my boat, "You believe in our Heavenly Father?" said the missionary. "Yes!" "And in Christ?" "O yes!" replied the ruffian. "You must not murder." "Oh we never do that!" "Nor abuse women! nor steal!" "Oh never!" The man departed with much religious instruction leaving a favourable impression on the mind of his instructor, but not forgetting adroitly to steal my powder flask! Tsiu-tsuen too must have had many a laugh at some of the idiosyncrasies of those who would instruct him in religion. To one American missionary he sent a crown made of gilt pasteboard and a massive gold ring of considerable value. The recipient of these favours telling me the story said. "I at once sent back the paper crown to his majesty, saying that I lusted after a celestial and not a terrestrial crown, and quoted some texts bearing on the subject; but as I could recollect no text that had anything to say about celestial or terrestrial rings, I kept the bauble, and sold it at Shanghai for 70 taels!"

T'ien Wang's theology after Tung Wang's death underwent some little change. He makes himself and son to all intents equal with God. God, Christ, myself and son are Lords for ever was his assertion on every proclamation. In fact be made a practical sort of Godhead of which he and his son were the incarnate half. Yet in the books I hold in review he is very unitarian. Shang-ti with him was always most honourable. He scouts the idea o the equality of the Son. That a son could be equal with the father was a dogma he would never believe. The celestia insanity is painfully apparent in the king's last documents, bu

it is always on the theological side. In the few secular despatches I have seen of his, he is sensible until the conclusion when he always rushes into some tremendous dogma, and winds up by asserting his equal kingship with God. Among his manuscript gazettes I find the following for the 1st day of 1st moon of 1861.

"The edict of the Heavenly King. To my nephews Ho and Sêng, to the princes of Kan, T'a, and all celestial captains, commanders and guardians of the heavenly capital both within and without.

"God and Christ have come down among men, and heaven and earth are renewed.

"God and my Elder Brother ordain that I and my son should rule, and my palace is established and renewed.

"The father and son, the grandfather and grandson are Lords indeed, and the kingdom of heaven is renewed.

"God and Mama, the elder brother Christ and his wife came down together, and heaven is renewed.

"The heavenly day of great peace is manifest in the myriad places, and the bounds of the earth are made new.

"Heavenly captains and legions assist me in my work, and rewards and distinctions are renewed.

"On earth as in heaven my sacred commands go forth, and the mountains and seas are renewed.

"The snakes and beasts are slain, and mankind is satisfied and tranquil. Officers and men are renovated.

"All is mine for ten thousand and a thousand times ten thousand years, and the order of the world is renovated.

"The winds and the rains are obedient unto me, and the grace of heaven is spread out. Every thing is renovated."

This is the song he sang when Soochow and the Grand Canal were his, and the imps no longer menaced his capital.

"God, the Elder Brother, myself and son, are the heavenly dynasty. On earth is great peace and the omens of heaven are manifest, old and young, males and females, behold the signs of the heavens. The great brother commanded and lo! it has come to pass. On the 7th of the 2nd moon my mother beheld the kings of the east, west and south, commissioned to exterminate the imps, come to my Golden Dragon palace to greet me Lord of a Myriad Years; and they went forth with the utmost diligence to the conquest of Soochow. Behold Soochow is now won, and

Chên-san-mei is thankful for the doctrine of heaven. In the 5th watch of the 6th day of the 9th moon I was thanking God who vouchsafed an omen—a perfect dream. I beheld a countless host of captains and celestial soldiers coming to offer me sacred things and precious jewels, and respectfully arranging them in the Presence. I laughed inwardly uttering no sound. This morning early in the 5th watch I was praising God and dreamt that I had obtained another city. Whereon I exclaimed 'On earth no place is useless.' I told all this and commanded the captains to hear me. In the eleventh year of my reign I ascended into heaven. God and Christ were with me to exterminate the snakes and devils. On either side heaven's officers and servants protected and aided me to battle and exterminate. I fought until I could no longer move. Myriads of heaven's officers and soldiers protected me and did my behests until I slept and awakening renewed the fight. Time after time did this occur. God and Christ were with me in the work of exterminating snakes and devils with innumerable officers and soldiers. They supported my body. Whatever I wished to do there were people to do it. So I sang this song.

"In my dreams also am I king and in my sleep govern the hills and the streams. In heaven is the Lord and my Elder Brother dwells on high.

"Commanding that I should reign they encompass me as with a cord.

"Below on the earth have I children and brothers and husbands of sisters. (They with) the whole of the celestial servants aid and assist me."

Again I find the following among the gazettes. "During the 5th watch of the 6th day of 9th month I beheld an innumerable army coming with presents to God, the Elder Brother and myself. I laughed and was rejoiced. I exclaimed. 'All the length and breadth of the earth is God's, the Elder Brother's, and ours.' All must be regained for us. And the generals said 'Be it according to your word.'"

Here is a specimen of a vision which is recorded in the curious manuscript book of gazettes. It will serve to convince most people of the insanity of the celestial king.

"15 day, 1st month—1861. This morning during the 5th watch I had a vision while praising God. He ordered me to slay the tiger imps, those four damnable tigers and two black curs. The

whole heavens rejoiced to assist the heavenly dynasty; the snakes and beasts fled before the presence of God and my brother. All the great ones and people thanked Heaven for its pains, and heaven and earth rested in peace on the advent of Taeping.

"God in his goodness gave me a sign in a vision. Two of my wives were walking with me on the same road; in front they saw four very large yellow tigers opposed to me. My wives were much alarmed, and I feared that if I advanced the tigers would wound the two women, so I took them back. To my astonishment I found these were demon tigers which pursued us; on hitting one with my hand they all changed into the form of men. Then I suddenly awoke. Considering this prognostic important and being uncertain as to its meaning, I besought God my father and Christ my brother to send me another vision to instruct me... God in his goodness sent another dream to direct me in the way. I was seeking for the place where I had struck the tiger and at once found it! Lo! there were four tigers and two black dogs lying down together, and I saw that the tigers were all dead, as was also one of the black dogs, but one was still alive. I caught him by the throat and hit him again and again. The dog in the voice of a man said 'I fear' I said 'I am going to kill you,' and I beat him to death. Counting on my fingers I found I had slain four tigers and two black dogs, altogether six beasts. On hearing of this joyful omen my nephew and young brother went forth to conquer and exterminate the imps, and the scribes were commanded to inscribe this."

Probably the last gazette the king ever wrote is this:

"God, my Brother, myself and son sit in the heavenly hall, the fame of the celestial kingdom of great peace resounds through space. In our heavenly kingdom God is chief in everything and Great Peace is spread out upon the hills and streams. Henceforth let our style be 'the Heavenly Kingdom of God' 上帝天國 God is the universal father.

"Let the signet and all the seals be at once changed, and the proper inscription, 'the Heavenly Kingdom of God' be thereon written. Let the same be cut on the jewelled signet. So by all the seals shall the protection of heaven be made manifest.

"Now I hereby declare to heaven, earth, and men, that God the Heavenly Father is alone most excellent, who was from the spreading out of the heavens until now, the exceeding great creator of all things. Bethinking me that God and my brother

Christ had descended to lead me into the seat of kings, the style of my empire was 'Heavenly Kingdom of Great Peace.' But although God the heavenly ruler is my father, and Heaven's Lord, Christ, my brother, none have the preeminence but God alone. Completely fulfilling the commands of God let the style T'ai p'ing t'ien kuoh be changed into Shang ti t'ien kuoh, 'the Heavenly Kingdom of God.'"

I could quote many more of these extraordinary documents, but the similarity is tiresome. Of some I can make nothing. In fact I may make the same apology as Jên-fah and Jên-tsh who inscribed the celestial visions: "We have written as commanded by our true sacred lord, but as the king speaks heavenly language we can only comprehend two or three sentences out of every ten." What I have given may help to convince investigators that the so called visions of Hung were merely the ravings of a man theologically insane. But lest any of the few remaining believers in T'ien Wang as a Christian champion, should object to these extracts as not fully developing the man's creed, I will give a few translations of Hung-tsiu-tsuen's commentaries on the New Testament which ought to place the matter finally at rest. Hung's notes on the New and Old Testaments are written on the margin of the books. He has but little to say on the Old Testament; at which I wonder, as he was loud in his wish to imitate David in the torture of the inhabitants of Rabbah during my stay in Nanking.

On the 4th chap. Matthew the king says as follows. "God is flame, the sun is also flame, therefore God came with the sun. Respect this!"

"God is the holy spirit and came with the Holy Ghost (lêng); after fifty days the Holy Ghost descended and there was a flame and wind, the flame and wind both proceeded from God and accorded with one another: God is flame, therefore a flaming spirit; my brother is flame, therefore a great splendour. I am the sun and, am therefore brilliant. Respect this." Further on he upbraids people for saying the kingdom of heaven is in heaven, when Christ says it was coming quickly, and behold it is now come!

The cleansing of the leper is thus explained. "God rested on the head of my Elder Brother who, when he spoke, uttered the words of God, and therefore cleansed the disease" (smallpox). Speaking of the pacification of the storm in 24 v. of 8th chap. the

king says. "The wind employed by heaven was the Tung Wang, so of course he was obedient. Respect this!" On Matth. 24 (The sun shall be darkened) is remarked: "My Elder Brother when in the world went about secretly because he feared the people. I am the sun; I descended into the world and became man, when I changed I became non-luminous. My wife is the moon. She descended and was incarnate and no longer sheds light. The heavenly captains and hosts, even the stars, became incarnate, and fell from heaven upon the earth. My Elder Brother ascended into heaven on the clouds and shall gather his people together from the four quarters. All must confess this. Respect this." T'ien Wang mystifies the faithful in his interpretation of the verse in chap. 27 where Christ says Eli, Eli, lama sabacthani. Christ, he says, in these words secretly confessed that Hung was to be lord and rebuild the temple. No one in Nanking would care to contradict this curious translation.

On Mark Chap. 1 v. 11 (And there came a voice from heaven) he remarks with regard to the Holy Spirit, "It is God. He descended upon my Elder Brother and led him away. How can it be that one Holy Spirit became my brothers body? There is besides another Holy Ghost which makes up the Trinity even Tung Wang. This must be known. Christ plainly said there is only one very God. How then did his disciples fall into the mistake of saying that Christ is God. If theirs is the correct explanation why there must be two Gods. It may wrongfully be explained by saying that Christ is God and that on his ascent he was united with God. How is it that before the time of David my Elder Brother saw God and that God spoke to him; and how is it that when I went to heaven I saw that there were in heaven, God the Father, and the Mother of heaven his wife, and brother Christ, there was also my heavenly sister in law, who is now descended. Truly the Persons are the Heavenly Father, the Heavenly Mother, my Heavenly Brother and his wife."

His remarks on Luke are few and consist of an untranslatable interpretation of the conception, and various warnings against those who consider the Son equal with the Father. Hung is not favourable to St. Paul. He says of Paul's command to uncover the head while praying 1 Cor. 1, 4. "The covering of the head has nothing to do with the desire of the heart, cover or uncover as you like! Respect this!" And further on. "Every one born first receives the soul, and afterwards the body of flesh.

The Lord of souls creates a soul and then sends it into the mother to get a body put to it. The body is begotten of the mother but the soul is of the Lord of souls. The holy kingdom in heaven is the great heavenly hall of God, there are thirty three heavens; earth is the heavenly hall. The great heavenly hall is the place of souls, earth of bodies."

On the third Epistle of John is the following startling announcement. "God is one and most honoured. Christ is his son. The Son is born of the Father, originally one substance united. The Father is alone the Father, the Son the Son; they are one and yet two, two and yet one. As to the Shêng-lêng (Holy Spirit) that is Tung Wang. By the will of God all plagues and pestilences were upon the Lêng Tung Wang. He was also God's beloved son and with the Elder Brother and myself born of one mother, born before the heavens and earth. God the father is the only true Shên, and only true Shêng-shên; God says beside me than shalt have none other Shên, none other Ti. The Shêng shên is God, if there was another Shêng-shên there would be another God. The Shêng-fung is also the breath 風 of the Holy God Shangti. Not that this Fung is the Shêng-shên, for the fung is the Tung Wang who from heaven above sends down wind. Respect this."

He has, as might be naturally expected, some curious notes on the Revelations: On 3rd ch. 12, 13 (Him that overcometh will I make a pillar in the temple of my God, &c.) Hung remarks. "Now that the Elder Brother has descended, the Celestial dynasty has a temple of the true God, the heavenly father Shang ti, and a temple of the elder brother Christ, engraved with the names of God and Christ. The kingdom of God the Father and the New Jerusalem which came down from heaven is fulfilled in the present celestial capital (Nanking). Respect this." On 6th ch. 12, 13, 14 (the sun became black as sackcloth of hair and the moon became as blood) is remarked. "I am the sun, my wife is the moon; to turn black like blood covertly signifies descent and incarnation. The stars of heaven, are the celestial troops! By falling to the earth is covertly meant a descent into the world to exterminate the imps. The passing away of the heavens as a scroll, and the removal of every island and mountain from its place, covertly reveals that in heaven and earth the old is to be exchanged for the new; and now the map of the empire had been made new under the T'aip'ings. The captains of the earth

hiding themselves in dens and rocks is a covert revelation that the serpents and beasts were to be slain and the imps exterminated. All this is now fulfilled. Respect this."

11th, chapter 15, 18 he says:—"Now the heavenly father Shangti and the elder brother Christ have come down and taken myself and the Son to be lords. All countries have already submitted to God and Christ who have brought me to rule for all generations. It is fulfilled. Respect this!" On 12th chapter we are startled at finding that—"The Elder Brother, myself and the Tung Wang, before the heavens and earth, were by the favour of the Heavenly Father, born from the womb of his original wife the Heavenly Mother. Afterwards the Father sent the Elder Brother to be a redemption for sin, and to enter into Mary to be incarnate. This is why the Elder Brother said—'Before Abraham was I am!' When I was in heaven at the time of Abraham I have some recollection of knowing that the father was about to send the elder brother to be born of the seed of Abraham. I therefore went down and blessed and saved Abraham. At that time too, I knew that the Father was going to send me to rule the world, therefore I had a desire to show myself below as Lord: afterwards when I received the Father's commands to enter my mother's womb and descend into the world, I knew that the imp Yenlo (Abaddon) would raise a disturbance, so I besought the father that no harm should arise through him. Afterwards the father commanded me from heaven to be born from the womb of another mother from heaven so that I might be incarnate. I remember that I entered into the womb of this mother, and that the father gave a sign, namely clothing her with the sun to make manifest that that which she had conceived was the Son. I knew that the serpent devil Yenlo also knew that in the womb of this mother was I. Shangti especially sent me into the world to exterminate this serpent. Therefore was it that he wished to devour me and usurp God's heritage; but God is omnipotent and the son born to him could not be injured by the serpent. Behold I testify the truth of myself. In former times Melchisedec was I, and after the Elder Brother had ascended, the child born of the sunclad woman was myself also: now the Father and Elder Brother have come down and brought me to be the lord especially to exterminate this serpent. Lo! the serpents and beasts are slain and the empire enjoys Great Peace. It is fulfilled. Respect this!" On the 14th ch. 15 v. (the angel with the sickle)

is recorded—"Now is the time for the grain to be ripe; I am the lord of the harvest and Tung Wang is the Ho-nai. 20th ch. 10 v. the king says, "What John saw was the celestial hall in heaven above. Heaven above and earth are alike. The New Jerusalem is the present Nanking. God and Christ have descended to make us lords and open the lower celestial hall, so the heavenly hall of God is among men. The wife of the Lamb of God (Shêng kao), is my heavenly sister in law. When I was in heaven how many times did I not see her! Now this heavenly sister has also descended and called me husband's brother (Shŭh). Respect this!"

The last commentary is this. "Now since God and Christ have both descended, what holy disciple does not rejoice, and since they have verified the Gospel which has been delivered unto you why dont you believe? This is truly the prediction of my Elder Brother (with regard to me); I also will come like a thief when you dont expect me! Respect this." At all events no one will fail to acknowledge the truth of the last assertion, and it affords a good concluding point. It is Hung's last commentary and the only true one! He did come as a thief; as the desolation of vast tracts of country testifies to this day.

Considering the life of Hung-tsiu-tsuen, I am in no wise astonished at the grotesque monstrosity of his belief. The very slight knowledge six months in Robert's Canton school could have given him of Christianity; his after poverty, troubles and persecutions—all tended to confuse a mind already prone to disease. Then came his regal success. To him, the poor peasant, who had not cash enough wherewith to bribe the examiners at Canton, or the runners of a country tribunal; to whom even the purchase of his daily food was a difficulty; were suddenly given provinces, cities and armies; and the persecuted became the persecutor. His astounding success must have conveyed to his mind, and to those of his followers, an idea that his former ravings during his sickness were realities; that he was indeed the Son of God going forth conquering and to conquer. So neither Hung-tsiu-tsuen's belief, nor its acceptance by his followers, surprises me; my astonishment is reserved for those foreigners, who with the evidence I have just given at their command, could for a moment believe in Taeping Christianity or the sanity of its chief. Alas for defeat! Had the Heavenly King subverted the empire and established his dynasty, his story would have been accepted by the whole country, and for-

eigners would have executed the celestial behests and accepted the celestial gold, without any questioning. A few centuries would have thrown a halo over Hung's works, especially those regarding the unseen world, and have converted the monster into a Saint and Sage. But he rose from the universal rottenness for the bloody service given him to do, and his place knows him no more. For him was ordained a career like that of those monstrous heroes of history, those demigods, who fulfilling some fixed but unknown law, rise from the decay of dynasties and go forth to chastise nations and afflict mankind. And as in the case of all historic parallels the warning, loud and bloody as it was, has been utterly unheeded; nothing has been changed, and nothing will be changed. Read the history of Justinian in Gibbon's Rome and you have an exact history of China at present. As soon as the government here can no longer make play things of foreign forces troubles will begin again. How true was the remark of the old Swedish Chancellor, and how applicable now: —"My son! my son! you know not with how little wisdom the world is governed."

LIST OF T'AI P'ING WORKS.

1. T'ien fu shang ti yen t'i hwang chao.

天父上帝言題皇詔

The Imperial proclamations dictated by God the Father. (One volume).

2. T'ien fu hsia fan chao shoo.

天父下凡詔書

The book of proclamations regarding the Heavenly Father's visit to earth. (Two volumes).

3. T'ien ming chao chih shoo.

天命詔旨書

The book of proclamations and orders as commanded by heaven. (One volume).

4. Chiu i chao.

舊遺詔

The old Testament. (Six volumes).

5. Tsien i chao.

前遺詔

The new Testament. (Eight volumes).

6. T'ien t'iao shoo.

天條書

Book of Heaven's commandments.

7. T'ai p'ing chao shoo.

太平詔書

Book of T'ai p'ing proclamations. (Two volumes).

8. T'ai p'ing li chi.

太平禮制

Rules and ceremonies of T'ai-p'ing-dom. (One volume).

9. T'ai p'ing chŭn muh.

太平軍目

T'ai p'ing army list of officers. (One volume).

10. T'ai p'ing t'iao kwei.

太平條規

The T'ai p'ing list of rules. (One volume).

11. Pan hsing chao shoo.

頒行詔書

Book of disseminated proclamations. (One volume).

12. Lieh.

曆

T'ai p'ing Almanac. (Two volumes).

13. San tzŭ ching.

三字經

T'ai p'ing Three character classic. (Two volumes).

14. Yu hsio shih.

幼學詩

Poetry for children. (One volume).

15. T'ai p'ing chiu shih kao.

太平救世誥

T'ai p'ing prayers for the salvation of the world. (One volume).

16. Chien t'ien ching yu chin lin lun.

建天京於金陵論

Book regarding the establishment of a heavenly capital at Nanking. (One volume).

17. Pien yao hsue wei tsuy li lun.

貶妖穴爲罪隸論

Lit. Degrading the caves of the imps into the ti (messengers) of sin.

Trans. Book regarding the changing of the name of the province Chih li (directly attached) into Tsuy li (criminally attached). (One volume).

18. Chao shoo kai hsi pan hsing lun.

詔書蓋璽頒行論

Regarding the sealing with the Imperial seal and dissiminating proclamations. (One volume).

19. T'ien ch'ao t'ien mao chih tu.

天朝田畝制度

The heavenly dynasty's regulations with regard to agriculture. (One volume).

20. T'ien ch'ing tao li shoo.

天情道理書

The heavenly book of Tao li (Eternal Fitness "TÒ KÁLON.") (One volume).

21. Ch'ien tszŭ chao.

千字詔

The thousand character classic. (One volume).

22. Hsing chŭn tsung yao.

行軍總要

Elements of Military Tactics. (One volume).

23. T'ien fu shih.

天父詩

Poetry of God the Father. (Five volumes).

24. Wu liu.

武畧

Strategics. (One volume).

25. Hsing shih wên.

醒世文

Book for awakening the world.

26. Wang ch'ang tzŭ hsiang chin muh chin urh kung chêng fu yin shoo.

王長次兄親目親耳共証福音書

The Gospel of the evidence of what the Prince's Brothers saw with their eyes and heard with their ears. (One volume).

27. Yu chu chao.

幼主詔

The edicts of the young Lord.

28. Sze chieh t'iao leih.

士階條例

Regulations for literary advancement.

ARTICLE X.

CARTE AGRICOLE GÉNÉRALE DE L'EMPIRE CHINOIS.

TEXTE PRÉFACE, LÉGENDE ET RÉPERTOIRE.

Par Monsieur G. EUG. SIMON,

Consul de France à Ning-Po.

I.

C'est assurément à propos de tous les pays, mais surtout à propos de la Chine, que l'on peut dire qu'aucune division n'est aussi propre qu'une division agricole, à donner une idée rapide et exacte du pays, quelque soit le point de vue auquel on se place.

Que l'on adopte en effet pour la Chine une division Géographique par exemple, et que, les yeux sur la carte, on considère que cet immense Empire s'étend du 18ème. au 46ème. degré de latitude et du 18ème. de longitude occidentale au 16ème. de longitude orientale (Méridien de Pékin); l'esprit se représentera immédiatement les mêmes différences, les mêmes contrastes, les mêmes analogies auxquels la connaissance d'autres contrées situées dans les mêmes limites l'aura habitué.

Pour la plupart des lecteurs, le même degré de latitude représentera le même climat, la même température en Chine, en France, en Russie, en Amérique, &a. et cependant ne donnera aucune indication sur l'orographie ni la topographie de la contrée; logiquement, on sera porté a croire qu'il y a entre les Chinois du Nord et ceux du Sud, ceux des confins du Thibet et ceux des bords de la mer, les mêmes différences qu'entre l'Anglais et l'Espagnol, entre le Français et le Russe. Or rien est moins juste.

En outre la division géographique a encore le grand inconvénient d'évoquer le souvenir des cultures qu'on aura jusquelà observées dans les mêmes circonscriptions et de là, une suite d'erreurs sur les mœurs, les industries et le commerce des habitants.

Une fois la division géographique admise, l'esprit s'en trouve tellement influencé que lors même qu'il veut ensuite se rendre compte de certains faits spéciaux il ne le peut plus sans un certain effort de raisonnement.

Ainsi, par exemple, une fois la Chine partagée en Nord, Centre, Est, Ouest et Sud, qu'il apprenne que le nord renferme des pâturages et des grains, il sera inévitablement conduit à penser que le système agricole du Nord, est, peut ou doit être souvent un système mixte, céréale et pastorale, tandis que la vérité est que ce système mixte n'est qu'une très rare exception; de là encore de graves erreurs sur les conditions politiques et économiques du pays:

Une division agricole au contraire explique tout a l'instant; si l'on remarque par exemple que le blé, pris comme type d'une région n'est pas cultivé au dessus de tel degré de latitude, on en conclura naturellement qu'au dessus de cette zône, le climat est beaucoup plus froid que dans tel ou tel autre pays où le blé remonte plus haut, et on en déduira une altitude plus élevée, le voisinage de hauts plateaux sans aucune végétation qui adoucisse la température.

Que si l'on aperçoit au milieu de ces espaces d'où le blé est exclus, la présence de certains végétaux qui ne croissent que dans les zônes tempérées, on en conclura tout aussi naturellement qu'il existe là quelque crevasse profonde, quelqu'excavations de montagne, où la latitude, n'étant plus combattue par l'altitude, reprend tous ses droits;—que si la carte indique la présence du riz au dessus de la ligne où s'arrêtent d'autres plantes dont il semble pourtant être ailleurs le compagnon inséparable, ce sera là encore un indice certain du climat, et il suffira de remarquer que ces plantes se trouvent en terre pendant l'hiver aussi bien que pendant les autres saisons, tandis que le riz ne s'y trouve que pendant l'été et une partie du printemps et de l'automne; pour qu'on puisse affirmer sans hésiter que l'été est très chaud et l'hiver très froid, ou qu'en d'autres termes les extrêmes de températures sont très éloignés, éloignement dont la mesure pourra même être donnée par l'écart existant entre la dernière ligne des plantes en question et la dernière du riz.

Enfin, que s'il croît dans les mêmes lieux quelque végétal, plante, arbre ou arbuste qu'en France par exemple le froid paralyse souvent d'un côté et finisse par tuer, comme le Diospyros Kaki (Sse-Tze) ou comme le mûrier ou le jujubier qui ne vient pas dans d'autres pays sous des latitudes considérées comme plus chaudes, il sera certain que les saisons sont parfaitement distinctes, qu'il n'y survient pas de froids tardifs ou précoces qui surprennent la végétation en mouvement, et que l'atmosphère pendant l'hiver n'est troublée par aucun vent fort.

Ainsi l'on aura d'abord la climatologie, l'orographie et jusqu'à un certain point la géologie de la contrée.

On en aura également l'industrie et le commerce; non pas seulement le commerce et l'industrie des produits immédiats ambiants, ce qui est d'une naïve évidence, mais le commerce et l'industrie dûs aux produits des contrées voisines. Qui filera et tissera la laine des troupeaux des Mongols par exemple? Ce ne sera pas les Mongols eux mêmes, qui étant pasteurs et forcément nomades, ne peuvent pas être industriels; mais ce sera, à coup sûr, leurs voisins, les stables et sédentaires Chinois, et *a priori* on pourra sans craindre de se tromper placer les fabriques de draps, de feutres, de tapis aux abords de la grande muraille et sur les frontières Chinoises du Thibet. Quant aux Mongols, ils resteront pasteurs et pourront par surcroît se livrer à la chasse, la seule occupation qui puisse se concilier avec leur état principal.

Ce n'est pas tout: dans quelles conditions est l'industrie? Est elle concentrée dans de vastes ateliers, occupant un grand nombre d'ouvriers?

Or, on ne voit d'abord dans les environs, aucune trace de forêts ni de prairies, mais le terrain est couvert de récoltes farineuses et potagères. De là absence ou insuffisance d'animaux de travail, besoin d'engrais, nécessité de la culture à la main, densité de la population; de là, division de la propriété. Tout habitant ou du moins tout chef de famille est propriétaire et forcé de travailler, par lui même ou par les siens; pas de grands ateliers, le travail en communauté de la famille et ainsi: constitution de la famille.

Est-il besoin d'ajouter pas de grands propriétaires? Pas de grands domaines, pas de féodalité, la democratie et tout l'ensemble d'institutions qu'elle entraine et qui la conservent.

Si ensuite on ne découvre dans toute l'étendue du même Empire aucune séparation tranchée entre les cultures fondamentales, sera-t-il trop hardi d'en présumer une fusion analogue entre les habitants, et peut-être l'unité parfaite de leurs mœurs et de leurs lois?

Enfin qui ne sait l'influence du milieu, du climat, de l'alimentation et des institutions sur le développement physique de l'homme? Et de tout ce qui précéde sera-t-il difficile d'en déduire des renseignements utiles relatifs à la physiologie, à l'anthropologie, &a., &a.?

C'est impiré de ces pensées que je ne puis guère qu'énoncer içi, mais dont le travail auquel je suis occupé depuis longtemps sur la

Chine et qui sera incessamment publié est pour ainsi dire la preuve circonstanciée, que j'ai entrepris la carte agricole de la Chine.

Si je ne me suis pas trompé, si l'agriculture est l'axe ou le pivot de la civilisation Chinoise, ce qui, inaperçu explique pourquoi elle est si peu comprise jusqu'à présent, si l'agriculture est la clef de voûte de cet immense et presqu'eternel édifice social qui abrite plus de cinq cents millions d'hommes; ma carte ne sera pas seulement intéressante pour l'agriculteur de nos pays mais elle sera utile aussi aux négociants, aux industriels qui, en attendant une carte spécialement industrielle et commerciale que je leur promets, voudront se rendre compte du genre et de la nature du commerce et de l'industrie d'une partie du monde vers laquelle tous les yeux commencent à se tourner aujourd'hui: elle sera utile aux économistes, aux diplomates dont le devoir est avant tout de connaitre les conditions économiques, les besoins et les possibilités du peuple avec lequel ils traitent: elle sera utile enfin aux hommes d'Etat et aux savants qui se sentiront quelqu'attrait pour l'étude sérieuse du plus ancien Empire du Monde.

On demandera comment j'ai pu réunir les nombreux éléments d'un aussi grand travail? Ma réponse est dans les fonctions que j'ai successivement remplies depuis six ans. Pendant plus de trois ans et demi d'abord, délégué du Ministère de l'Agriculture et du commerce j'ai parcouru une grande partie de la Chine; des bords de la mer mon pied est allé heurter aux derniers contreforts des chaines du Thibet et s'enfoncer dans les sables mouvants de la Mongolie; pendant plus de trois ans et demi je n'ai cessé d'explorer les différentes régions agricoles comprises dans ces lointaines limites, et depuis deux ans que par la bonté de Son Excellence Monsieur Drouyn de L'Huys je me trouve rattaché au pays que j'avais ainsi appris à connaître et pour lequel je me sentais une réelle sympathie, je repris autant que me l'ont permis mes nouvelles occupations, des études auxquelles n'ont d'ailleurs jamais manqué les bienveillants encouragements du Ministère des Affaires Etrangères.

Je n'ai pourtant pas pu tout voir, mais les quelques provinces que le défaut de temps et d'argent, car s'il en coûte pour voyager c'est surtout en Chine, et les provinces dis-je que le défaut de temps et d'argent m'ont empêché de visiter, ne me sont pas pour cela restées tout à fait inconnues;—des entretiens avec des Chinois originaires de ces provinces, controlés et confirmés par des

correspondances soigneusement entretenues avec mes amis les missionnaires, m'ont mis à même de suppléer jusqu'à un certain point à l'observation directe. Et à ce propos, qu'il me soit permis de citer ici en témoignage de juste reconnaissance les noms de Messieurs l'abbé Mihières qui voulût bien m'accompagner pendant un long voyage en Mongolie, l'abbé Vinçot qui ne voulût pas non plus me laisser seul pendant tout mon voyage dans les provinces occidentales, quoique cefût dans la saison la plus chaude et la plus pénible, l'abbé Perny, l'abbé Delamarre, enlevé il y a trois ans par une mort rapide à la science et à l'Apostolat,—de leurs Grandeurs,—Messeigneurs Faurie, Chauveau, Desfleches, Thomines-Desmazures, Verrolles, des missions Etrangères;—de Messieurs l'abbé Jeandard, l'abbé Tagliabue, l'abbé Anot et de leurs Grandeurs Messeigneurs Delaplace, Anouilh, Baldus et Moully, des missions Lazaristes;—de Messieurs l'abbé Tang, et l'abbé Tchang, et de leurs Grandeurs Messeigneurs Navarro et Zanoli des missions Franciscaines, enfin du P. D'Argy et des regrettés P. P. Lemaitre et Clavelain de la compagnie de Jesus.—Toutes leurs lettres respectueusement conservées forment de précieuses pièces justificatives dont quelques unes trouveront leurs places dans le cours d'un prochain travail.

Cependant, malgré tout, il n'est impossible de donner cette carte comme absolument correcte et il y a pour m'en empêcher une excellente raison que l'on comprendra tout de suite; c'est que c'est la première carte de ce genre qui ait été faite.

Elle recevra, je le sais d'avance et les appelle de tous mes désirs, de nombreuses modifications dont je tiendrai compte dans les autres éditions qui pourront en être faites; mais je crois pouvoir assurer aussi que ces modifications ne porteront guère que sur les limites extrêmes des cultures et non sur leurs centres, de sorte que les fautes qui peuvent y avoir été commises ne sont pas essentielles et n'entraineront pas, on le voit, de graves conséquences.

Enfin quant aux critiques qui seraient tentés de pousser jusqu'à ces détails une rigoureuse sévérité je les prierai de considérer encore ce que je disais tout à l'heure; c'est la première carte agricole de la Chine.

L'idée m'en a paru devoir engendrer quelques bons résultats et cette conviction, non moins que mes antécédents m'ont semblé me faire un devoir de la mettre à exécution. D'autres viendront, si ce n'est moi-même, qui corrigeront cette carte mais il fallait commencer et je me suis devoué.

Ce la dit, j'attends leurs censures et m'y soumets d'avance; sans cesser d'être sévéres je suis persuadé qu'elles seront bienveillantes.

II.

Les limites de la carte que nous avons sous les yeux sont indiquées au Nord par 39 degrès de longitude du 22ème. Occidental au 16ème. Oriental (Méridien de Pékin) et au Sud par 31 degrès du 18ème. Occidental au 12ème. Oriental, et par conséquent par les 44 et 18ème. degrès latitude Nord, c'est-à dire par 737 lieues de l'Est à l'Ouest et par 675 du Nord au Sud, comprenant une surface de 497,475 lieues carrées environ.

Il ne faut rien moins qu'une portion du globe aussi considérable, non pas précisement pour représenter la Chine elle même mais pour la faire comprendre et pour justifier chacune des observations dont elle peut être le sujet.

Quant à la Chine proprement dite elle s'inscrit entre le 43ème. et le 20ème. latitude et le 6ème. 5′ longitude Est, et le 17ème. 5′ longitude Ouest: encore faut il déduire de tout cet espace ainsi limité les surfaces occupées par la mer qui la baigne au Sud, et sur tout son flanc oriental, les grands plateaux sableux qui la dominent au Nord, et les hautes montagnes qui lui font obstacle à l'ouest, et l'aire propre de la Chine en y comprenant la Mandchourie ne sera plus environ que cinq fois ou cinq fois et demie celle de la France par exemple.

Tel est le champ soumis à nos considérations.

J'avais en commençant le tracé sur la carte, l'intention de n'y faire figurer que les cultures les plus importantes et de les y indiquer toutes; mais je ne tardai pas à reconnaître que, même en ne tenant compte que de ces cultures, le nombre en était si grand qu'il faudrait pour les représenter de façon à donner une idée à peu près exacte de leur répartitions sur le territoire de la Chine, une carte trois fois au moins plus grande que celle que nous avons sous les yeux.

Or, comme de telles dimensions l'auraient rendu impossible, je me résignai à avoir recours à plusieurs feuilles et à n'inscrire sur celle-ci que les cultures les plus générales et celles qui pouvaient le plus interesser l'Europe; encore me fallût-il en doubler quelques unes, c'est-à-dire en représenter plusieurs par la même couleur.

Il est bien entendu que je ne me suis permis ce dédoublement que lorsque ces récoltes étant d'abord de même nature, se suivent et s'accompagnent partout et peuvent être regardées comme succédanées les unes des autres. Telles sont par exemple le sorgho et le millet, le blé et l'orge; c'est toutefois une défectuosité dont je ferai en sorte de purger la carte au moyen des feuilles qui pourront suivre la première, mais que je n'aurais pu éviter de prime abord qu'en séparant chaque culture, c'est-a-dire en transformant la carte en Atlas, ce qui ne répondait plus aux vues, que j'avais de présenter pour commencer un tableau aussi complet et aussi synoptique que possible de l'état agricole de la Chine et en quelque sorte de l'assolement général de cet Empire.

Il est vrai que la division des récoltes en cartes particulières aurait eu l'avantage très grand assurément d'en faciliter l'étude détaillée et de fournir même, en rendant possible une certaine combinaison des courbes, le moyen d'indiquer pour chacune les différents degrés d'intensité et de rendement; mais il n'est pas moins vrai non plus, que le rapprochement de toutes les récoltes sur une même carte provoque immédiatement et sans effort, par la seule vue, des observations d'un intérêt plus général, et il m'a semblé que cette considération devait primer les autres.

Je n'ai même qu'un regret, c'est encore une fois, de ne pas avoir pu tout inscrire sur la même feuille.

Nous avons ici sous les yeux quatorze récoltes, mais, quoique je me hâte de le dire, ce soit a peu près les principales; nous n'en avons que quatorze et la Chine en comprend *soixante dix*.

Qu'on les suppose un instant réunies, se croisant, se couvrant, se décuplant les unes des autres; l'esprit est presque effrayé de la masse énorme de population nécessaire soit pour les produire soit pour les consommer. Que l'on remarque de plus que certaines de ces récoltes sont cultivées jusqu'en des lieux où il semble le plus impossible qu'elles existent, comme le riz qui est produit jusqu'au sommet des montagnes, et que l'on songe aux efforts prodigieux qu'il a fallu accomplir pour les y amener; combien devaient être et sont impérieux les besoins qui les ont nécessités!

Faut il d'autres indices de la densité de la population, d'autres preuves des chiffres accusés par les recensements?

Que l'on remarque encore qu'aucune de ces soixante dix cultures n'est spécialement destinée à l'alimentation des animaux, que par conséquent sauf le petit nombre de ceux que l'herbe des chemins et des cimetières et les déchets de la consommation de l'homme

permet d'entretenir, toute force doit venir de l'homme, et que c'est de lui encore que la terre attend toute sa fecondité.

Remarquons enfin que la plupart de ces récoltes sont excessivement exigeantes: c'est le Thé dont il faut ceuillir toute la feuille au moment précis et voulu, presque mathematique de sa croissance, avant qu'elle ne grandisse d'avantage.

C'est le riz qui demande tant de soin pendant 3 mois que presque partout où il abonde nous le voyons exclure les autres plantes. C'est la cire d'insectes dont les producteurs doivent être incessamment surveillés, protégés contre leurs innombrables ennemis, ramassés s'ils tombent au bout d'une aiguille de bois et replacés sur leur nourrice. C'est le ver à soie, et quand ce n'est pas celui du mûrier, c'est celui du chêne, véritable enfant dont je n'ai pas besoin de rappeler tous les caprices.

En vérité, si une chose pouvait nous étonner dans les chiffres en question, ce serait qu'ils ne fussent pas vrais.

Cinq cent trente sept millions disent-ils? C'est en effet possible et cependant c'est si écrasant que je comprends encore qu'on répugne pour ainsi dire à l'admettre.

Mettons donc quatre cents;* mais il serait absolument impossible de dire moins.

Et maintenant reportons nous au chiffre de notre Commerce avec ces quatre cent millions d'hommes.

En 1864† il était de ..... 498,410,886f.
pour l'exportation et de ..... 466,336,992f.
pour l'importation soit en tout ..... 964,747,878f.

si nous voulions savoir de combien ce commerce étranger affecte chaque Chinois nous trouverions un dividende de 2f. 30c. environ, ce qui est peu; mais ce n'est pas de cela qu'il s'agit; sur les 466,336,992f. d'importations il y a 63,135,612f. de lainages,

id id 42,591,132f. de cotonnades,
id id 187,535,160f. d'opium,
id id 173,073,088f. divers, renfermant pour une somme considérable des objets destinés à l'usage exclusif des Européens.

Laissons de coté les 187,000,000 d'opium retranchons encore 20,000,000, représentant soit les consommations Européennes,

* Un recensement fait en 1812 accusait 367 millions d'habitants.

† Voir Réflexions sur l'Etat actuel du Commerce Européen en Chine (1864,) G. Eug. Simon.

soit les réexportations et il nous restera une somme de 258,801,832 francs affectant utilement pour l'importation la population Chinoise.

Si nous convertissons à présent cette dernière somme en cotonnades à raison d'un prix moyen de 12f. la pièce, (il y a là deux grandes éxagérations en faveur du commerce Européen) nous trouvons qu'elle représente un chiffre de 21,566,820 pièces environ.

Est-ce trop d'attribuer à un habitant une consommation annuelle de deux pièces, si ce n'est pas trop, onze millions huit cent mille habitants seulement prendraient part à nos importations, mais si nous voulions tenir compte des éxagérations signalées, ce ne serait tout au plus que 7 à 8,000,000 soit 10,000,000 d'habitants. Or, la seule province du Kiang-Nan ou se trouve Shang-haï en compte 70,000,000. Encore ces 10,000,000 de consommateurs ne se trouvent-ils pas groupés, il a fallu aller les chercher, les solliciter presque, par l'ouverture de douze ou quatorze ports.

Voila à quoi se borne l'influence du commerce Européen en Chine, et cela oprés deux cents ans pour le moins de tentatives et d'essais et trois ou quatre guerres plus ou moins couteuses.

Que conclure de ce qui précède, si ce n'est de deux choses l'une, et peut-être les deux, ou que la Chine est tellement organisée qu'elle ne ressent aucun besoin de notre commerce (sans cependant que l'on ait la ressource d'expliquer cette indifférence par l'absence de besoins, car la carte prouve précisement le contraire) ou que nos efforts ont été des plus maladroits puisqu'ils n'ont aboutés qu'à des résultats relativement aussi insignifiants.

Voila une première observation: après le nombre et l'intensité des cultures, ce qui dans l'examen de la carte agricole de la Chine attire le plus l'attention, c'est la façon dont elles sont groupées, groupement qui résulte de leur distribution, ou en d'autres termes de leur assolement.

Qui dit assolement suppose loi, et si je me sers de ce mot, c'est qu'il est plus qu'évident que cette distribution n'est ni arbitraire ni fortuite; et si l'on pouvait en douter, il suffirait pour s'en convaincre de remarquer la division d'une même production en un nombre plus ou moins grand de foyers, la netteté avec laquelle ces foyers se separent souvent, soit à de longues, soit même à de courtes distances, l'empressement que certaines récoltes semblent mettre à se rechercher, l'accumulation de plusieurs sur un même point, &a. Toutes ces choses, encore une fois, ne sont pas évidemment sans raisons.

Ce n'est pas ici le lieu de les exposer. Il y a assolement, c'est tout ce qui nous importe et beaucoup de personnes penseront peut-être que j'aurais pu me dispenser de le montrer.

Il y a assolement, et cet assolement le plus riche que l'on puisse imaginer, des milliers d'années l'ont consacré. Il n'est donc pas seulement riche, il est à croire qu'il est aussi, bien entendu, sage. On pourrait dire que c'est le temps lui même qui l'a établi et rien n'est solide comme les constructions dont le temps se fait l'architecte. Dans tous les cas, si ce n'est pas le temps qui l'a édifié, il est sûr que le temps l'aurait détruit s'il avait été défectueux.

Ainsi nous sommes en présence d'un assolement riche et sage, c'est à dire le plus productif, le plus économique possible; et alors ne doit on pas user de la plus extrême circonspection pour engager le peuple Chinois à le répudier ou seulement à le modifier, car n'est ce pas le changer que d'augmenter le rôle de telle ou telle culture.

Ne peut on concevoir maintenant les répugnances qui lui font résister aux sollicitations étrangères. Il y a cédé quelquefois et il n'a eu qu'a s'en repentir. En 1863 par exemple, on avait engagé les cultivateurs du Tché-kiang a mettre le plus possible de terres en Coton et en 1864 les récoltes de plusieurs milliers d'hectares étaient abandonnées sur pied faute d'acheteurs. Un autre mécompte bien plus cruel attend les Chinois, dans peu d'années, quand les coteaux et les vallons de l'Hymalaya pourront abreuver l'Angleterre.

Je suis bien loin de dire ou de penser qu'il n'y ait absolument rien de plus à espérer de notre commerce d'importation avec les Chinois; je voudrais seulement montrer que cette augmentation ne peut qu'avoir des limites très prochaines; qu'elle ne doit et ne peut être poursuivie que dans certaines localités, dans certaines circonstances particulières telles que celles que j'éxposerai tout à l'heure en parlant de la Soie, mais que jamais elle ne comblera les désirs de ceux qui, supputant le petit nombre d'articles que nous fournit le peuple Chinois, voudraient du moins l'amener à ne produire que ceux là, ce qui leur procurerait par surcroit l'avantage de lui envoyer en échange tous ceux à la production des quels il aurait renoncé. C'est ainsi qu'on lui a demandé d'augmenter ses exportations de Coton, de Thé, de Soie, et qu'on leur demande maintenant d'augmenter celles du chanvre d'ortie, &a.

Je le répète: je suis loin de croire que rien absolument de ce qu'on lui demande n'est possible, mais à la condition que ce qu'on lui demande ne troublera pas l'économie de sa production, et, sans former de jugement téméraire, je crois que c'est de quoi l'on s'inquiéte assez peu.

D'ailleurs en supposant accomplis les désirs les plus ambitieux, ne se trouverait on pas en face de résultats bien différents de ceux que l'on espère?

Admettons en effet que toute la Chine puisse être cultivée en Thé, et le soit en effet, comme trois mois au plus de travail dans toute l'année suffisent à la culture de cette plante, ceuillette comprise; pense-t-on que les Chinois n'en demanderaient pas un prix qui pût les faire vivre pendant toute l'année, et l'Angleterre consentirait elle à payer des ouvriers ainsi inoccupès. Mais les conséquences en seraient bien autrement désastreuses; cette longue oisiveté ferait perdre le goût et l'habitude du travail, et produit et producteur auraient bientôt disparu.

C'est au contraire le nombre, la variété et la proportion de ses cultures qui sauvent et retiennent le Chinois, et qui, lui permettant de demander le salaire de sa journée à plusieurs maîtres, lui donnent la possibilité d'en vendre les produits à un prix qui nous permet à notre tour d'en aborder quelques uns.

Déjà la terre lui manque, ne serait-il pas de la plus stricte prudence de ne lui rien faire perdre de ce qui l'y attache encore, de peur que, sans travail chez lui, il ne vienne en réclamer chez nous ou simplement en échange de nos produits et en vertu des mêmes principes dont nous voulons nous prévaloir chez lui, offrir ses bras à nos manufacturiers et à nos agriculteurs à un prix auquel lui seul peut-être, dans le monde, est capable de les offrir.

C'est ce qu'il serait peut-être difficile de resoudre. J'ai parlé déjà en d'autres occasions des difficultés, des inconvénients et même des dangers que pourrait présenter l'introduction en Chine de certains de nos engins modernes, telle que la locomotive et en général les machines, me fondant sur l'impossibilité où seraient ses habitants refoulés d'industrie en industrie et de plus en plus acculés de recourir au travail de la terre déjà trop occupée. Je ne répétrai pas ce que j'ai dit à ce sujet, ni du peu de chances de succés qu'auraient ces engins dans un pays sillonné comme la Chine, d'innombrables cours d'eau de toutes sorte au moyen desquels les transports s'obtiennent à très peu de frais, payés qu'ils sont déjà pour ainsi dire, par les services de ces mêmes canaux

employés aux irrigations. Ce sont encore des considérations que la vue de la carte ne peut que soulever et appuyer.

Je ne reviendrai pas non plus sur l'absence ou du moins l'insuffisance des animaux, si rares que l'on peut préjuger que bien peu de ceux qui existent peuvent être sacrifiés à la boucherie; je ne reviendrai pas, dis-je sur cette question, que pour suggérer l'idée de tenter d'importer en Chine les viandes si bien preparées et séchées des différentes contrées de l'Amérique où les animaux n'ont presque de valeur que celle de leurs peaux et ne coûtent que la peine de les tuer, de telle sorte que la viande en est vendue à un prix très bas. Un pareil essai ne serait pas seulement une bonne œuvre et un service rendu aux Chinois, mais encore, s'il en était ainsi, apprécié, la source d'immenses opérations.

J'ai dit aussi dans une notice spéciale le succés que l'on pourrait attendre d'une introduction plus large des lainages, si l'on pouvait les céder à un prix inférieur à celui que l'on en demande encore aujourd'hui.

J'exprimais tout à l'heure quelqu'appréhensions des conséquences qu'amenerait peut-être pour la Chine la suppression ou une diminution notable de l'emploi des bras dans l'une quelconques de ses cultures ou de ses industries.

Voici au Nord Est, dans la province de Chan-Tong, une astérique noire qui prouve que cette apprehension pourrait n'être pas sans fondement. Cette asterique indique la place, que je n'ai pu limiter faute de renseignements éxacts sur l'état actuel dufléau qu'elle signale, d'où est sortie la rebellion des Nien-Feï qui désole la Chine en ce moment. C'était il y a vingt ans encore, une des contrées les plus riches de la riche province du Chan-Tong, on peut en juger par les cultures voisines; mais il y a vingt ans environ le fleuve jaune qui jusquelà avait été, sauf de rares et terribles exceptions maitrisé par des soins et des travaux assidus, et auquel le Canal Impérial bien entretenu ouvrait une large saignée en le mettant en communication avec le Yang-Tsé-Kiang; le fleuve jaune abandonné a lui même par l'incurie de la dynastie actuelle, commença à sortir régulièrement de son lit et à couvrir de plus en plus la contrée environnante de sable et de limon. Il y a vingt que le mal a commencé et depuis les champs et les maisons ont disparu et les habitants errent par toute la Chine demandant au pillage le pain que la terre ne leur donne plus chez eux et qu'elle ne saurait leur offrir ailleurs. Et le fléau n'est pas resté localisé, son influence, s'éxerce sur la plus grande

partie de la province dont la population trop voisine des pillards, a abandonné ses champs encore verts pour se joindre a eux et devenir pillarde de pillée qu'elle était.

Nous aperçevons encore vers le Sud et à l'Est deux taches presque blanches à peine sillonnée de quelques lignes indiquant la première du Sorgho et des pâturages. Ce sont à peu près les seules exceptions à l'agriculture de la Chine. Ces localités sont habitées par les seuls aborigènes qui aient résisté à l'invasion de la civilisation Chinoise.

Ils vivent là parfaitement tranquilles, adonnés à l'entretien de quelques troupeaux, à la fabrication grossière de quelques tissus de laine et à la Chasse.

Je les ai vus au Se-Tchuen venir paisiblement échanger dans les marchés leur rares produits, la chevelure entière et longue, couverts d'une sorte d'étoffe de laine extrêmement grossière. Toute fois ces demi sauvages ne sont pas toujours aussi honnêtes et quand le besoin les presse, ils sortent de leurs montagnes par troupes de vingt ou trente et tombent à l'improviste sur les villages; c'est toutefois le seul cas où les autorités Chinoises en ordonnent la poursuite et la punition mais elles n'exercent pas de représailles.

Du reste on peut déjà prevoir le temps ou ces pauvres tribus se convertiront à la vie civilisée, déjà leur système pastoral n'est plus aussi exclusif et ils commencent à admettre quelques grains et quelques légumes.

Telles sont les premières et les plus générales observations que suggère un premier coup d'œil sur la carte agricole de la Chine; c'est à celle là que je me bornerai pour aujourd'hui, sauf à recourir à cette carte, quand jaurai l'occasion d'exposer de nouvelles refléxions.

Je passe maintenant à l'examen particulier de chacune des cultures comprises dans la première feuille, examen auquel d'ailleurs suffira un tableau indiquant quelques chiffres que je ne retarderai qu'afin de donner une légère esquisse des raisonnements dont ils peuvent être l'objet.

Cinq grandes cultures figurées par les couleurs vert bouteille —brune—rouge brique—vert foncé, et vert clair fixent d'abord l'attention par le développement qu'elles atteignent et l'espace qu'elles circonscrivent. Sauf un seule, la zône verte, elles ne sont point entièrement distinctes ni séparées les unes des autres et ne se précisent à l'œil sur la carte que par l'intemité à laquelle elles

atteignent par le rapprochement des lignes qui les constituent, ce qui établit un certain nombre de foyers dont les derniers rayons vont s'écartant de plus en plus. Puis, sur ce fond général, et parsemé sans ordre apparent, se détachent plusieurs autres foyers plus petits, de tons plus vifs qui donnent naissance à d'autres zônes.

Malgré cette apparente confusion il est cependant aisé de voir que, du moins pour quatre des cinq grandes cultures dont il a d'abord été question, leurs foyers affectent des zônes spéciales et assez bien tranchées.

Ainsi la couleur verte, refugiée au Nord, ne se mêle point aux autres. Les foyers rouges restent presque tous dans son voisinage; viennent ensuite les foyers vert foncé qui s'étendent presque sur une seule même ligne de l'Est à l'Ouest, et enfin les foyers bruns qui occupent les parties les plus méridionales.

La première représente les Pâturages; la seconde le Sorgho, le Millet et le Maïs; la troisième le Blé, l'Orge, et le Seigle, la qatrième le Riz, et quant à la couleur violette qui représente le coton on ne lui voit aucune place particulière et elle semble se mêler et se tisser indifféremment avec les autres.

Nous aurons donc quatre zônes ou quatre régions principales; celles des Pâturages, celle du Sorgho, celle du Blé et celle du Riz.

Chacune d'elles peut servir de base à des appréciations intéressantes. Veut on se faire une idée de leurs population, de la possibilité d'exportation de leurs produits, du chiffre de cette exportation? Mesurons les surfaces que couvrent chacune des cultures de ces régions, multiplions ces surfaces par le rendement moyen de chaque culture, soit d'après des chiffres spéciaux, soit même d'après les connaissances que nous aurons apportées d'Europe, additionnons toutes ces valeurs qui représentent ces rendemments d'après des chiffres donnés, connus; convertissons ensuite cette somme totale en blé, riz ou sorgho, necéssaire à la nourriture d'un homme. Les quotients, en supposant qu'il n'y ait pas d'exportation, nous donneront assez approximativement la population totale et pour chaque région.

Mais y a t-il exportation et de combien peut elle être?

Nous avons vu qu'il n'y avait pas d'animaux de travail.*

* Cette négation est on le sent, trop absolue. Il est difficile d'admettre qu'il n'y ait pas dans un grand pays, aucun grand animal, aucun cheval, aucun bœuf: mais on sent aussi qu'avec les cultures que l'on à sous les yeux,

Or, combien d'hommes faut il donc pour cultiver les espaces que nous avons mesurés! Combien pour les fumer?

Ceux là, du moins, sont indispensables, et ainsi nous aurons non seulement un chiffre minimum de population mais aussi la quantité maximum de riz, blé, sorgho devenus les représentants des autres produits, rigoureusement exportable.

Ces deux opérations faites nous en déduirons un résultat moyen que nous devons corriger par la refléxion.

Ainsi nous n'avons que le chiffre de la population agricole strictement nécessaire, mais nous savons qu'une population agricole ne peut pas exister seule. Il faut qu'il y en ait une autre qui fosse pour elle ce qu'elle n'a pas le temps de faire, qui transforme ses produits, il en faut une troisième qui aille les demander à la première et les porter à la seconde, il en faut une quatrième qui les protège et une cinquième qui les administre et les gouverne &a.

Qu'elles sont d'ordinaire les proportions entre celles-ci et la première?

Ce sera autant à lui ajouter et autant à dèduire de l'exportation.

Notons cependant qu'une cause possible d'erreur vient de se glisser parmi nos éléments de calcul. Nous avons parlé de la part de la population nécessaire à la protection et nous l'avons déduite de proportions prises en d'autres pays. Mais d'après la carte, il est patent que la Chine n'est pas dans les mêmes conditions que les autres pays. Autour d'elle point de bornes conventionnelles, rien par conséquent qui soit sujet à interprétation et à contestation, la mer, le désert et, du coté du monde, de hauts et multiples remparts naturels, les chaines du Thibet. La protection ne sera donc qu'intérieure et comme sa population est agricole, c'est-à-dire, nécessairement laborieuse et tranquille, cette population ne comportera guère qu'une gendarmerie.

Cette restriction faite, nous ne pourrons pas assurément conclure de ce qui précède des chiffres précis sur la population la valeur de la production, l'exportation, l'armée, &a. mais du moins nous pourrons nous en faire une première idée approximative; et,

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le nombre de ces animaux en est fort reduit tout juste a ce que l'on pourra nourrir avec l'herbe qui croît le long des chemins, dans les cimetières, avec les dechets de légumes &a. Ces animaux sont surtout des animaux de travail; ce sont ceux dont les services sont les plus indispensables. De plus si l'on fait attention que la culture principale de la Chine est le riz, c'est-à-dire une culture marécageuse, l'éspèce animale qui devra dominer est celle qui vit le mieux dans les marais, ce sera le Buffle.

en n'oubliant pas que ces chiffres devront être au dessous de la réalité puisque le riz, le blé et le sorgho ont seuls servi à nos raisonnements, tandis qu'il y à d'autres cultures plus riches réclamant plus de bras, satisfaisant et indiquant plus de besoins, nous aurons du moins de quoi nous former un premier aperçu sur les *possibilités* du pays en population en produits en commerce, &a.

Je ne puis indiquer içi que la marche des opérations; les opérations elles mêmes m'entraineraient beaucoup trop loin. Ensuite les résultats prendraient nécessairement une forme trop précise, et je ne pretends pas encore une fois içi qu'à des aperçus.

Mais si l'on voulait des données exactes pour la Chine, on les trouvera dans le travail prochain dont j'ai déjà parlé.

CARTE AGRICOLE DE LA CHINE.

PREMIÈRE FEUILLE

REPERTOIRE

MÉRIDIEN DE PÉKIN.

Les points indiquent les centres des cultures, dont les lignes sont les limites.

Pâturages ..... 1 . . . . . .

Millet ..... Sorgho ..... Maïs ..... } 2 - - - - -

Orge ..... Blé ..... Seigle ..... } 3 - - - - - -

Riz ..... 4 —·—·—

Coton ..... 5 -·-·-·-



Les autres feuilles comprendront.

Avoine ..... Prunier .....

Blé de Printemps ..... Pigne .....

Sarrazin ..... Bananier .....

Haricots ..... Luzerne .....

Pois ..... Courges .....

Fèves ..... Betteraves .....

Lentilles ..... Carattes .....

Arachide ..... Navets .....

Sésame ..... Aubergines .....

Colza ..... Raves .....

Ricin ..... Choux .....

Soie d'ailanthe .....

Cire d'abeilles ..... Ignames .....

Opium, (prohibée depuis 18 mois) .....

Chanvre, ordinaire .....

Seigle .....)

Riz 4

Coton 5

Chanvre d'ortie (China-grass) 6

Thé 7

Soie du Mûrier 8

Cire d'insectes 9

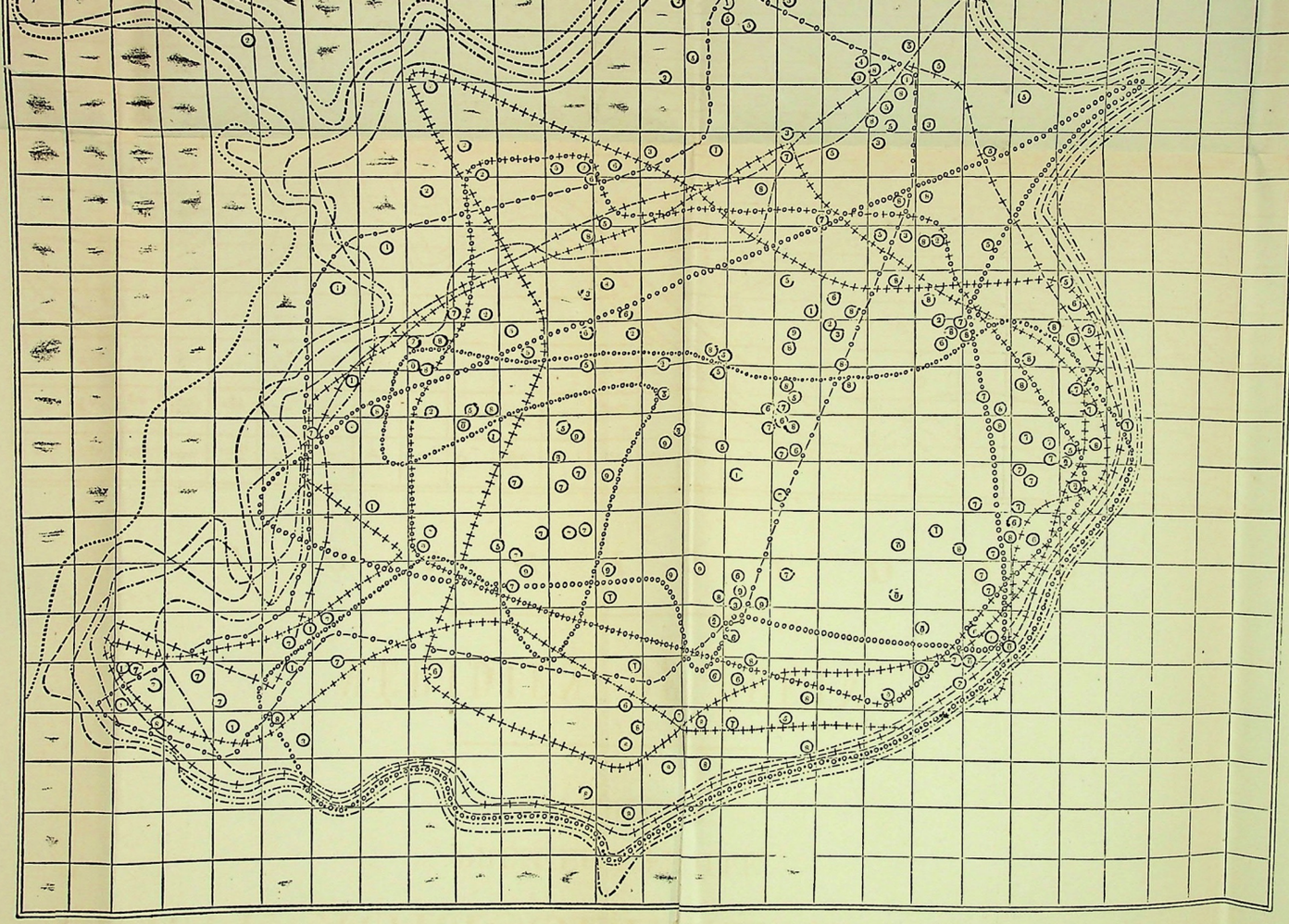
Canne à Sucre ..... $\overline{0}$

Soie de Chêne et autres ..... $\overline{1}$

Vernis ..... $\overline{2}$

LATITUDE

38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20



Lentilles ..... Carattes .....

Arachide ..... Navets .....

Sésame ..... Aubergines .....

Colza ..... Raves .....

Ricin ..... Choux .....

Soie d'ailanthe .....

Cire d'abeilles ..... Ignames .....

Opium, (prohibée depuis 18 mois) .....

Chanvre, ordinaire .....

Tabac ..... Coba .....

Forets, (reduites à deux) .....

Plantations Forestières .....

Bambou ..... Taro .....

Palmier, (à chauvre) .....

Azerollier ..... Pomme de terre .....

Abricotier ..... Chastaigne d'eau .....

Oranger ..... Nénuphar .....

Citronnier ..... Carthame .....

Li-tchi ..... Indigo .....

Noyer ..... Vert de Chine .....

Jujubier ..... Gingembre .....

Kaki ..... Canelle .....

Nèflier ..... Champignons .....

Poirier ..... Rhubarbe .....

Pêcher ..... Josse à Chandelle .....

TABLEAU DE LA DISTRIBUTION DES RÉCOLTES EN CHINE D'APRÈS LA PREMIÈRE FEUILLE DE LA CARTE AGRICOLE GÉNÉRALE.

RÉGIONS.	VALEUR DE LA TERRE DANS CHAQUE RÉGION. En supposant que la récolte principale soit la seule cultivée.	RENDEMENT MOYEN ET QUANTITÉ. En supposant que la récolte principale soit la seule cultivée.	RÉCOLTES OU PRODUITS DE LA RÉGION.	CENTRES DE PRODUCTION PRINCIPAUX.	VALEURS DES PRODUITS DANS LES CENTRES AU MOMENT DE LA RÉCOLTE.	VALEUR DES PRODUITS À SHANG-HAÏ.	OBSERVATIONS.
PÂTURAGES.	Hectare	Hectare	Bœuf Chameau Cheval Chevre Mouton Yerck Sorgho Millet Maïs Coton	Mongolie et Thibet id id id id id Une lisière d'environ 10 lieues en dehors de la grande muraille plus haut en Mandchourie.	15 à 40 f. 80 à 200 f. 18 à 50 f. 4 à 6 f. 4 à 6 f. 25 à 40 f.	160 à 240 f. — 200 à 250 f. 15 à 18 f. 25 à 30 f. —	La terre en Mongolie est la propriété de quelques Princes qui ne peuvent la vendre. Cependant comme en général leurs revenus sont assez faibles; ceux qui sont propriétaires des terres voisines de la grande muraille ou les Chinois qui ont commencé à y emigrer, il y a une centaine d'années, sont en grand nombre aujourd'hui, ils éludent la défense et louent à très longs termes à leurs voisins à raison de 50 à 60 francs l'hectare, et même moins, selon les avances que le Chinois est disposé à lui faire.
SORGHO.	Hectare 1,600 à 3,000 f.	Hectare 4,000 à 5,000 k.	Sorgho Millet Maïs Coton en grains Blé Orge Seigle Soie de Chine Riz	Mandchourie Petcheli Chan-Si (Nord) Chen-Si (Nord) Kan-Sou	9 à 10 f. les 60 k. 14 à 15 f. id 8 à 9 f. id		Ces différences dans les prix du blé s'enpliquent ainsi. Dans les centres de production spéciaux, comme au Ho-Nan, le blé est la nourriture ordinaire des habitants, à Shang-Haï c'est le riz, et le blé n'est demandé que lorsque le riz ne suffit plus; alors le prix du blé dépasse souvent celui des lieux ou il est le plus récolté.
BLÉ.	Hectare 2,400 à 5,500 f.	Hectare 2,000 à 2,500 et 3,000 k.	Blé Orge Seigle Coton Soie du Mûrier Soie du Mûrier Ordinaire Soie de l'ailante Vernis Cire d'insectes Chanvre d'ortie Sorgho Millet Maïs Thé Riz	Ho-Nan Hou-Pé Chan-Si (Sud) Chen-Si (Sud) Chan-Tong (Ouest) Se-Tchuen (Nord) Se-Tchuen (Est) Chan-Si Chan-Tong Se-Tchuen (Nord) Chan-Tong Chan-Tong Se-Tchuen, Chen-Si, Chan-Si et Chan-Tong. Se-Tchuen, Ho-Nan et Chan-Si. Chan-Si et Chen-Si	10 à 11 f. 8 à 9 f. 8 à 9 f. 35 à 40 f. 2,000 à 2,500 f. 950 à 1,200 f. 350 à 400 f. 140 à 150 f. 56 à 64 f.	9 à 14 f. 10 à 11 f. 30 à 36 f. Trop variable pour être indiquée. N'est pas encore courante. Même note. 280 f. 100 à 110 f.	Cette différence dans la valeur d'un produit aussi demandé vient de ce que la soie produite dans cette région est plus mal filée que dans les autres régions, il n'y en a qu'une très petite quantité qui soit achetée par les Européens et qui atteigne alors au prix ordinaire. La valeur de ce produit a presque triplé depuis cinq ans.
RIZ.	Hectare 1ère. qté. 6,000 à 6,500 f. 2ème. qté. 4,000 à 5,000 f. 3ème. qté. 2,000 à 2,300 f. Les terres de la plaine de Tchen-Tou au Se-Tchuen valent de 25 à 36,000 f. l'hectare et rapportent de 10 à 14,000 kilg. de Riz.	Hectare 3,500 à 4,500 k. 2,500 à 3,000 k. 1,800 à 2,300 k.	Riz sans paille Thé Chanvre d'ortie Soie de Chine Cire d'insectes en 1863 Vernis Coton en grains Sorgho Blé Millet Maïs Orge Sucre Soie ordinaire Soie ordinaire	Hou-Nan Kiang-Si Kiang-Sou Se-Tchuen Fo-Kien Tché-Kiang Kiang-Si Hou-Nan Yu-Nan Se-Tchuen Kiang-Sou Kiang-Sou Ngan-Hoï Hou-Pé Se-Tchuen Se-Tchuen Kouang Sú Hou-Nan, Ngan-Hoï et Kouang-Tong Fo-Kien blanc Fo-Kien jaune Se-Tchuen blanc Se-Tchuen jaune Kiang-Sou et Tché-Kiang Se-Tchuen Hou-Pé Yu-Nan Kouang-Tong	11 à 12 f. les 60 k. 10 à 11 f. id 11 à 12 f. id 10 à 11 f. id 200 à 240 f. 36 à 64 f. 950 à 1,200 f. 200 à 250 f. en 1863 30 à 36 f. 43 à 48 f. 27 à 28 f. 38 à 40 f. 20 à 22 f. 2,500 à 2,800 f. 1,900 à 2,400 f.	100 à 110 f. 400 à 430 f. 55 à 60 f. * †	On a souvent vu le riz descendre au Kiang-Si et au Se-Tchuen à 7 et 8 francs. On le voit souvent monter à 18 et 24 francs au Kiang-Sou et au Tché-Kiang. Qualités ordinaires. * A Ning-Po il vaut déjà 44 à 46 francs. † La quantité de Soie produite au Se Tchuen pourrait être d'une année à l'autre portée au double. Elle était il y a 12 ou 15 ans de 30,000 balles, elle est descendue à 16 a 18 chiffre auquel elle était en 1863 par suite de la rebellion des Taï-pings qui interceptant le fleuve, empéchaient les communications entre cette province et celles où les plus belles Soies venaient se faire fabriquer, le Tché-Kiang, ce qui rendait les transports plus longs et plus coûteux. Mais les mûriers n'avaient pas été arrachés. Il est probable même que depuis deux ans l'éducation du ver à Soie y a repris un nouvel essor. Les vers à Soie en Chine sont sujets comme partout a bien des maladies, mais comme les éducations sont en général, petites, elles peuvent être plus soignées et les maladies ne font pas les mêmes ravages qu'en Europe. La prébine n'y a pas été remarquée jusqu'à présent. Une cause d'immunité pour les Chinois vient peut être du soin qu'ils prennent de renouveler leur graines au moins chaque deux ans, en allant la chercher pour le Se Tchuen, dans les montagnes derrière Pao-Ning-Fou, et pour le Tché-Kiang à Tet-Sih-Hien et à Hin-Hiang.

ARTICLE XI.

CHINESE NOTIONS ABOUT PIGEONS AND DOVES.

By T. WATTERS, Esq.

M. Remusat, as quoted by Sir J. Davis[1] who agrees in the opinion, gives the Chinese a moderate amount of praise for their achievements in the field of Natural History; and he regards their language as well adapted by its nature for being the record of scientific classification. Others, however, have entered on the study of Chinese works on Natural History and have found in them little of scientific or social value. Even the particular work which Remusat analysed and on which he based his statements shows Dr. Williams how little the class of works to which it belongs will reward the perusal.[2] So also Mr. Swinhoe observes with respect to the Zoological section of the official account of the Prefecture of Taiwan, which he had translated and annotated. "As regards myself, I have found a certain benefit to accrue, for I have learned that there are still several animals in the island, with which I am unacquainted, and I have been able to bring to light from this Chinese work, several facts and remarks which will much interest scientific men at home. Regarding, however, the Chinese work from a scientific point of view, it will be found to fall very far short of what might be expected in a book comprising as it pretends to do the entire statistics of Formosa. The notices of the animals are short and incomplete, and sometimes so imperfect as to render it almost impossible to detect what creatures are intended," &c.[3] In order to form an opinion for myself on this subject, I devoted a considerable amount of time to the study of the teachings of the Chinese concerning one family of birds, viz:—the Columbidæ or pigeons. This study has been very unsatisfactory, partly through want of opportunities, and partly from apparently conflicting and meagre accounts of birds given by Chinese writers, and the impossible nature of many of their remarks. Such as it is, however, I now submit the result of my investigations to the students of China and the Chinese.

The word *chiu* 鳩 corresponds loosely to the term Columbidæ, including in its most general sense all doves and pigeons, though Dr. Williams[4] makes *ko* 鴿, a pigeon, the name of the family. In his "English and Chinese Vocabulary" the same scholar gives *ko* as the equivalent of dove, and *pan-kiu (i. e. pan-chiu)* 班鳩 as the equivalent of pigeon; while Chalmers in his Canton Vocabulary makes *kop (i. e. ko)* and *pan-kiu* the equivalents of dove. In the Amoy dialect the dove is called *ka-tsui* 鵁鶄 and the pigeon *chi^{ng}-ah*, though *pan-kap (i. e. pan-chiu)* is also used. The Shuo-wen 說文 and the Ko-wu-lun 格物論 make the *ko* 鴿 a class under the *chiu*; but in other Chinese writings I do not find either the *chiu* made subordinate to the *ko* or *vice versa*. In these there are three great classes, the *pan-chiu* 班鳩, the *shi-chiu* 鳲鳩 ,and the *ko* 鴿, that is, turtles, wood doves, and pigeons. For convenience sake, however, I shall divide all the birds included under the term *chiu* into 1st *ko* or pigeons, chiefly domestic, and 2nd the *chiu* proper or doves.

I.

The Ko-tzŭ 鴿子 or Pigeons.

The class Birds is divided by the Chinese into four great departments, water birds, land birds, forest birds and hill birds.[5] The pigeons are included in the list of land birds along with partridges, quails, bats, &c.

A synonym for *ko-tzŭ* is *po-ko* 鵓鴿 which is supposed to imitate the cooing of the pigeons. The carriers are called *fei-nu* 飛奴, flying slaves. This name is said to have originated with the Emperor Ming 明 of the T'ang dynasty.[6] Another account, however, makes a Chang-chiu-ling 張九齡 to have been the first to use this name.[7] He lived during the reign of the above Ming, the third of the dynasty, under whom he held a high office. The pigeons which fly about with whistles attached to them are called *pan-t'ien-chiao-jen* 半天嬌人, mid sky charming girls.[8] The Pên-ts'ao or Chinese Herbal gives also the name used in the Sanscrit writings for pigeon as *chia-pu-te-chia (i. e. ka-pu-te-ka)* in old Chinese 迦布得迦 and intended for *kapota* कपोत.

Pigeons are said to be of various colours as azure, white, black, green and mottled. The eyes are in some large, in others small, and they are yellow, vermilion or green in colour.[9] Though of

general distribution neither these birds nor doves are to be found in the capital of Kansuh.[8] The existence of pigeons in a wild state is also noticed, but I find little said about them distinctively.

The Chinese regard these birds as very libidinous, especially hens, which they represent as acting towards the cocks in a very unhenlike manner.[9] They are supposed to breed every month, but the number of eggs laid at a time is not stated. It is supposed that the dove and the pigeon breed together,[9] though, of course, no evidence of the fact is adduced. Their amorous disposition accounts for this as also for the facility with which pigeons themselves can be made to live together. They are also supposed to remember for a long period their original home, and to be able to return to it from a great distance.[8] This fact is alluded to in a beautiful little ode to the white pigeon by Hsü-yü 徐寅 of Tah-chien, who represents the gull 鷗, unable to find her way back to her home, think sadly of her clear native river, on seeing the pigeon which she knows can fly back to her home. Another writer alludes to the custom of persons going voyages in ships and boats sending back pigeons for long distances to announce to friends at home that all was well.

It is perhaps not unworthy of notice here that the pigeon was one of the six sorts of wild birds which the emperor's butcher had to furnish for the imperial table and for sacrifice, during the Chow dynasty. The other five were the wild goose, the quail, the patridge (or rail (?) Biot), the pheasant and the dove.

Among the various kinds of pigeon the white one seems to be the favourite with the Chinese, and they regard it as the only one having medicinal value. Its flesh is said to be saltish and without poison, and to neither heat nor cool the blood. This last pecuniarity is expressed by the word *p'ing* 平 *i. e.* evenly balanced or in due proportions. It dispels the noxious effects of any drug and summarily cures the itch even when of long duration. With this one may compare what Bacon says in his "Historia Vitæ et Mortis:"—"It is a common practice in extreme and desperate diseases to cut pigeons in two, and apply them one after another to the soles of the feet of the sick man. This sometimes gives wonderful relief, which is commonly imputed to their *extracting the malignity* of the disease. But in some way or other this treatment affects the head and comforts the animal spirits."

Pigeon's flesh is also useful in adjusting the seminal secretions, increasing the animal spirits, and healing several cutaneous affec-

tions, but, though thus beneficial to man, if taken in large quantities there is danger of it losing its medicinal value. It is also said to take away one's thirst for drinking water, and to dispel the poison of the small-pox pustules. If one cook the flesh of the white pigeon and give it to a child to eat, washing also his body with a decoction of the bird's feathers, very few small-pox pustules will come out on the child.

The blood of these birds dispels the poisonous influences of all noxious worms.

The eggs are an antidote to the injurious effects of boils and small-pox. If a person when young eat these eggs he will never have small-pox, or, if he have, the pustules that will appear will be few in number. The following is the course to pursue in order to obtain this effect. Take two eggs of the white pigeon and hermetically seal them in a bamboo tube, putting the whole in the middle of the privy. Allow it to stay there for half-a-moon, then take it out, mix the whites of the eggs with three ounces of *shen-sha* 沉砂, ether sand, a very fine red sand-like substance; make this compound into pills of the size of a green pea, taking 30 of these for a dose, and repeating the dose three times. After this delightful preparation has been thus taken by the patient, he will find the poisonous matter escaping rapidly by stool and urine.

The excrement of the white pigeon is also a medicine, its name being *tso-p'an-lung* 左盤龍, left-coiling dragon, so called because on falling it coils from right to left. That of the wild pigeon is the more highly esteemed. It is pungent, warm, and slightly poisonous. If roasted and pounded, and then applied to ulcerous sores on men or horses it will effect a cure; and it may also be mixed in the fodder for mules and horses to be taken internally. It removes swellings, acts as an aperient, and is of great service in uterine affections. When roast to a cinder and soaked in wine, it forms a cure for cold in the breast, and there are several other afflictions in which it is very useful. Now with these remarks on the qualities of the white pigeon's excrement we may compare what the Knight of Norwich has written on the same subject:—"The temper of their (*i. e.* pigeon's) dung and intestinal excretions do also confirm, which topically applied becomes a *phœnigmus* or rubifying medicine, and are of such fiery parts, that, as we read in Galen, they have of themselves conceived fire, and burnt a house about them."[13]

I do not know whether Chinese writers have ever questioned the existence of gall in pigeons, but from the general silence of their works on the matter I am induced to believe that they did not consider these birds possess any gall. I cannot speak with any degree of certainty, however, as I have not examined a sufficient number of their writings.

II.

The Chiu 鳩 or Doves.

This is the first of the seventeen kinds of birds enumerated under the category of forest birds in the Pên-ts'ao, crows, magpies, jays, &c. coming under the same category. The generic name there given is *pan-chiu* 班鳩 and this is the ordinary name for a dove. But, indeed, the names which the Chinese have for these birds are very numerous and not easy of distinction, especially to one not versed in ornithology. I shall endeavour, however, to give as many of them as are to be found in their books together with notices of their habits and qualities.

1. The *pan-chiu* 班鳩. This is properly the Chinese turtle dove, but the name is by no means strictly confined to this species. The word *pan* means spotted or variegated, and a synonym for *pan-chiu* in respect of plumage is *chin-chiu* 錦鳩 or embroidered dove.[1] Other synonyms are *pu-chiu* 鵓鳩 or rather *pu-kiu*, the old pronunciation of 鳩 being *kiu*, and *chou-chiu* 祝鳩 the prayer dove, so called because in early times it was used in the Imperial sacrifices.

2. The *shĭ-chiu* 鳲鳩 which Dr. Williams translates "the wood pigeon. Other names for it are *pu-ku* 布穀, *chia-ch'ü (i.e. ka-k'ü)* 鴶鵴, *hu-ku* 獲穀, *po-ku* 撥穀, and *kuo-kung* 郭公. Li-shĭ-chên 李時珍, the last editor of the Pên-ts'ao, under the Ming dynasty says that these names are imitative of the note of the bird; but other writers, as will be seen, give a different account of them. *Hu-ku* is a name used in Hunan; *po-ku*, in the north; and in other places it is called *sang-chiu* 桑鳩 or mulberry dove. Another equivalent for *shĭ-chiu* is *tai-shêng* 戴勝 or *shêng* wearer, the *shêng* being a pretty head ornament worn by females; and similar to this last name is another *tai-jen* 戴鵀 from a similar reason. The last two names are, however, apparently intended for the Hoopoe; and the picture of the *tai-jen* given in

the illustrations of the Urh-ya is evidently intended for that bird.

3. The *pai-chiu* 白鳩 or white dove.

Mr. Swinhoe in his comments on this name in the chapter of the Official Account of the Prefecture of Taiwan, makes the bird to be an albino of the Turtur risorius of India and other places. As such it is well known to foreigners as the Pescadore dove, most of the specimens offered for sale having been brought from the Pescadore Islands where they are kept in confinement by the Chinese. In other books, however, the white dove usually appears as in a free state.

4. The *huo-chiu* 火鳩 fire dove.

This bird Mr. Swinhoe calls the Turtur humilis. I have not found it in any other work except this Formosan book.

5. The *chin-chiu* 金鳩, or as it is called in the Amoy dialect *kim-ka-tsiu* 金鴿鷗 gold dove.

According to Swinhoe this is the beautiful little gold-and-green dove of south Formosa—the *Chalcophaps formosana*. The same remark applies to this bird as to No. 4, as to places where it is mentioned.

6. The *lü-chiu* 綠鳩 or green dove.

This is the name of a Treronine dove of Formosa, but I do not know that it occurs on the mainland.

Ku-chiu 鵠鳩 is another name for a dove for which *ku-chou* 鵠鵃 is also used.[2] This bird is said to come in the spring and go in the autumn, but I do not think it is a dove at all.

Those which are small and without spots or ornament are called by various names such as *kuei* 鷿, a word which Kanghsi's dictionary explains by "a dove" (*chiu* 鳩): *ching chiu* 荊鳩 and *ts'u-chiu* 楚鳩 meaning thorn bush dove.

Special names are also set apart for the young ones—thus they are called *ju-chiu* 鴽鳩, suckling doves; *k'ang-chiu* 糠鳩, tiny dove; *lang-kao* 郎皋, *ki-kao* 辟皋, &c.

In addition to the above there are several birds to which the name *chiu* 鳩 is applied, but apparently with less reason, if with any reason whatever. 1st. There is the *chü-chiu* 雎鳩 which is said in one place[3] to be of the duck family, and in another book is referred to the sea eagles[4] 鵰. It is mentioned in the beginning of the Shï-ching, and the context shows that the bird mentioned is a water bird. Another name for it is *wang-chü* 王雎.

2nd. There is the *mêng-chiu* 蒙鳩 or tiny dove. The philosopher Seun-tze 荀子 in the chapter of his work which is

headed Chüan Hsiao 勸學 or Exhortation to learn, says:—"In the southern regions there is a bird named *mêng-chiu*, which uses feathers to make its nest, binding them together by hairs, and fastening the whole on reeds. When the wind blows, the reeds are bent down, the eggs broken, and the young ones die." This tiny dove is said by one author to be the same bird as the *ch'iao-liao*[5] 鷦鷯 or *t'ao-chung* 桃蟲 a grass warbler or a tailor bird, while a second writer says that the *chou-chiu* is a *ch'iao-liao*, and a third that the *shï-chiu* is one.

3rd. There is the *shwang-chiu* 爽鳩 or fierce dove. This expression occurs in the Tso-chuan as the designation of the chief criminal judge of the emperor Shao-hao who styled his mandarins after the names of birds.[6] The fierce dove is interpreted to mean a hawk—a bird which, as will be seen, is in the minds of the Chinese closely connected with the dove.

4th. There is the *chü-ku*[7] 鵙鴝. Dr. Williams says this bird is a sort of grackle, or a singing thrush, perhaps the Turdus violaceus, and Mr. Swinhoe makes it the mainah. It is also called the *pa-ko* 八哥 or eight brothers. The description given of it in the Pên-ts'ao shows it to be the mainah, and gives one a tolerably good idea of its appearance and habits.

There are also several other names of birds containing the character *chiu* 鳩, some of which will be found in the part of the Urh-ya that treats of birds, but it would probably be useless to enumerate them here. Those which have been given are sufficient to indicate the laxity with which miscellaneous birds are admitted into this family: and I may now proceed to the descriptions which Chinese writers have given of the doves. These will be found to be very vague and meagre, and in the case of the white dove I have not found any description whatever given.

The *pan-chiu* 班鳩. These birds are either large or small. The small *pan-chiu* are of an ashen colour, with short tails, and without any spots or other ornament. The large birds have the nape of the neck adorned with spots like the flowers of the pear tree or like pearls.[1] The Tai-wan-foo-chï says that those of Formosa are unlike those of the mainland, but it does not specify the particulars in which they differ. This bird is identified by one writer, Liu-chï-chï 陸璣直 with the *ku-chiu* 鵠鳩, but he is contradicted by another who says that the *ku-chiu* resembles a magpie but is smaller, has a short tail, is of a greenish black colour, and is fond of perching on the ridge of a house early in

the morning and cooing there for a considerable time.[6] As this bird is also called *chü-chiu* 拙鳩 or stupid dove, and as this quality is, as will be seen, ascribed to the *pan-chiu*, which latter also cooes in the early morn on the house top, the identity is not very improbable. The author who dissents from this view says, however, that the one differs entirely from the other, as the *pan-chiu* is variegated on the nape of the neck. Dr. Williams says of the *ku* 鵠 that it is "a sort of turtle or wild pigeon, having a short tail; perhaps a francolin; also a kind of kite or glide,"—a description from which one can scarcely form a clear conception of the nature of the bird in question.

The *shï-chiu* 鳲鳩. This bird is said to be like the *yao*[8] 鷂 or harrier—of the same size as the *pan-chiu*, but of a yellow colour, and to have a long tail.[1] It is also said to resemble a jay, to have a long bill and a crest on its head. Its tail is short and along with the crest is of various colours,[6] thus evidently meaning a hoopoe.

The *huo-chiu* 火鳩. This bird—the Turtur humilis—is according to the Tai-wan-foo-chï chestnut colour on the breast.

The *lü-chiu* 綠鳩, according to the Tai-wan-foo-chï (Swinhoe's translation) "has a violet (紺 *kan*) bill and (碧 *peih*) turquoise plumage, more brilliant than that of the *ying-woo* 鸚鵡, parrot; but possesses no fine voice, yielding in this respect to the white dove." The *lü-chiu* is mentioned also by Li-shï-chen, though the bird to which he refers is probably not a treron.

The *chin-chiu* 金鳩 or gold dove. The Tai-wan-foo-chï describes this bird as having a green body, and both bill and legs of a red colour. It is said to be found only in Tamsui or south Formosa. In a passage, referred to above[9] in the Pên-ts'ao mention is made of a kind of small dove of a red colour and fond of congregating in flocks, but I do not think that the writer alludes to a genus similar to this gold-green dove of Formosa.

Habits and Qualities.

The Chinese regard doves as very stupid,[10] and one writer goes so far as to say that they are the most stupid of all creatures. Hence an individual wishing to speak very humbly of his own natural powers says he is "dove stupid"—*chiu-ch'ü* 鳩拙. Chaucer, it will be remembered, in the "Assembly of Foules", makes the dove speak of herself in a similar depreciating manner:

"I am a sede foule, one the unworthiest,
That wote I well, and leest of conning."

In compensation for deficiency of ability nature is supposed to have conferred upon the dove several moral excellences which make her of better repute than the clever birds which are destitute of any good moral qualities; thus some doves are remarkable for filial piety, some for faithfulness, and some for impartiality.

The stupidity of the dove is said to be chiefly manifested in the matter of nest building. The *pan-chiu* or turtle is supposed to make a coarse nest for itself by forming a slight frame of a few dry twigs loosely put together.[1] The poet Han-shan[11] 寒山 also commenting on this fact makes it an evidence of ability—"People say that the dove is stupid, but I say she is clever, for with one or two branches only she makes a home for herself. The *shï-chiu*, however, is worse than the above, for she cannot construct a nest of any sort. She lays her eggs and hatches her young either in the hollow of a tree or in the empty nest of a magpie or jay. This notion is supported by the venerable authority of the Shi-ching which says:—"The magpie has a nest—the dove *(chiu)* occupies it." On these lines the commentator remarks that the magpie is expert at nest building, making his nest well formed and durable, but that the dove is so stupid that it cannot build a nest for itself, but probably occupies the finished nest of the magpie. As to the white dove, instances are repeatedly recorded of her having built her nest in the thatch of a cottage, or above the door, or even in a temple, and of her having retained the nest for a considerable period of time.[7]

The number of young ones which the dove is supposed to hatch at a time is seven, and this is thought by some to be the reason that the numeral *chiu* 九, nine, appears as the phonetic element of the character *chiu* 鳩, the seven young ones together with the parents making up this number, and so the original idea implied in the character is *the family of nine birds*. Other explanations, however, have been given of the use of the character *chiu* as the phonetic of this word;[12] and it seems to me not improbable that inasmuch as formerly over all China the word for nine was *kau* or *kiu*, the character for nine was used as the phonetic of the character for that bird to which the name *kiu* had been given, perhaps as indicative of its call. The process described by the Chinese may thus be the reverse of what actually occurred—the notion of the family of nine having arisen from the independent

meaning of the character which was appended to the character for bird merely to indicate the peculiar note of the dove. This, however, is only speculation. The notion of the dove hatching seven eggs at a time is alluded to in the Shi-ching. "The wood-pigeon (*shï-chiu* 鳲鳩) is on the mulberry tree. Her young ones are seven"—or "the wood pigeons are" &c. *i. e.* the parents together with their brood seven are nestled in the mulberry or at least all perched on its branches. Notwithstanding this high authority, however, the Chinese have in some cases become sceptical about the truth of the assertion, and have even ventured on a different statement. Thus according to the text-book of Ornithology (*chin-ching* 禽經) the number of young ones which the dove hatches at a time is only three, and of these one is *ngyoh* 鶚, which Williams tells us is the osprey or fish eagle, thus reducing the young *doves* to their normal number. Those who hold to the old doctrine explain the fact of only two or three birds being hatched by the badness of the nest which allows the eggs to fall out from time to time;[7] but as the context of the passage in the *shï-ching* shows plainly that the young birds and not the eggs are alluded to this excuse will scarcely suffice.

The existence of monogamy among doves was, of course, observed by the Chinese long ago, yet the male is represented as sending away his mate on the approach of rainy weather, recalling her only when fine weather has returned. The virtue of marital fidelity, however, is little insisted on, and seldom mentioned. Among doves as among featherless bipeds the paramount duty of filial piety makes every other duty of little account, and where we would talk of the dove flying or perching with his *mate* near him, the Chinese talk of him as being with an aged parent.

The favourite haunt of the dove, but especially of the wood pigeon, is the mulberry tree. The poem last quoted from the Shi-ching represents the parent or parents as remaining on it while the giddy young ones are changing from the mulberry to the plum, and from that to a buckthorn, &c. The berries of this tree also afford nourishment to the dove, and the *ku-chiu* 鵠鳩 is represented as being so fond of them as to eat until she becomes drunk, accordingly the Shi-ching contains this excellent admonition. "Ah, my dove, do not eat of the fruit of the mulberry tree." It is because the eating of this fruit to intoxication injures the moral nature of the bird that this advice is given. In addition to mulberries the sprouting cereals of the fields afford

nourishment to doves, but they are supposed to be almost omnivorous, having excellent powers of digestion.

A peculiar and purely Chinese idea about the dove is that it collects and concentrates in itself *yang-ch'i* 陽氣, that is the purer and better part of the essence of things. This it does while perched on the roof of a house or the top of a tree in the early morning. The early and better part of the day is said to be *yang*, and the later and worse part to be *yin* 陰; and the above idea if translated from the language of mystic philosophy into that of ordinary life, is perhaps equivalent to saying that the dove gets the pure and fresh morning air, in short gets the proverbial "worm." It is from this notion that the word *chiu* 鳩 has come to mean to amass or collect, mostly in a good sense, I think. With this meaning it is used in the Yao-t'ien of the Shu-ching where Medhurst translates it by "has consolidated," and Dr. Legge does not know well what to make of it, but where the Chinese commentator simply explains it by *chü* 聚 to collect together.

Another extraordinary notion which the Chinese have about the dove is that it undergoes periodic metamorphoses. The turtle dove or *pan-chiu* is transformed in autumn into a bird called *hwang-ko-hou*[1] 黃褐侯. One author says this bird is like a dove but of a greenish colour. Another writer speaks of it as a diminutive dove of a reddish colour,[7] and he adds that when it is said that the dove is transformed into a *hwang-ko-hou*, allusion is made to the appearance of this latter bird in summer. It also is fond of eating mulberries and sprouting grass. The Pên-ts'ao makes this transformation to take place in the spring, but another work makes it to occur in autumn.[7] The bird recurs to its original condition in the autumn according to the former work, and in the spring according to the latter. If the *hwang-ko-hou* be conceived as a dove of bright colour into which the turtle dove is transmuted in spring, we may, perhaps, regard this as the Chinese way of saying that

"In the spring a livelier iris changes on the burnished dove."

But there is another transformation which does not admit of so easy an interpretation, viz: that of the *shï-chiu* into a sparrow hawk. In the Yue-ling 月令 chapter of the Li-chi classic 禮記 it is written [In the middle moon of spring] the sparrow hawk is transmuted into a dove," and in the Wang-chï 王制 chapter of the same book it is written "The dove is transmuted

and becomes a hawk." The commentator observes on this that the transformation must take place in the middle month of autumn as the other transformation was said to take place in the middle month of spring. Lee-tzŭ 列子 says that the harrier 鴽 becomes a *chan* 鸇 or falcon (?) which becomes a *pu-ku* 布穀; and this last finally returns to the harrier stage.[7] Another writer says that the *hawk-existence* of the bird is when it is carnivorous, and its *dove-existence* is the period of its non-carnivorous state. The word which I translate "transmute" or "transform" is *hua* 化, and the commentator on the former passage quoted from the *li-chi* is careful to explain that the term is used advisedly, as it indicates a revolving transformation from hawk to dove and from dove to hawk. The Pên-ts'ao gives an easy and satisfactory explanation of the metamorphosis by stating that these two birds are alike in their *ch'i* 氣 that is, the original essence of their being —the *material* as opposed to the formal part of their constitution. Another statement in the same book, the author of which seems to have been bordering on a state of intelligence, is to the effect that in the case of doves which are kept in confinement for some years, no transformation is seen to take place, either in spring or autumn. He might, however, have surmised that the absence of these changes was due to the fact of domestication.

I shall now endeavour to give some account of the moral qualities which Chinese authors and the Chinese generally ascribe to doves. The first and greatest virtue is filial piety, and two doves are particularly noted in this respect—the prayer (*chou* 祝) dove, and the white dove. The latter bird is supposed to take great care of its parents, and also to sympathise with human beings who act in a similar manner. Stories are told of it building its nest in the thatch of a cottage where a pious son was supporting an aged mother, and of its continuance there during the years that the son mourned for his mother on her decease.[7] The virtue of compassion is another attribute of the dove, especially of the wood pigeon. Steadiness and orderly conduct are also attributed to doves. In a poem in the Shī-ching already referred to, the parent dove is represented as remaining stationary on the mulberry tree while her young ones are flying about. There is also the common saying that the *ch'iao-liao* 鷦鷯 is clever but dangerous—the dove stupid but steady. So too in the Tso-chuan[6] the name prayer dove (*chou-chiu* 祝鳩) is that which is given to the *ssŭ-t'u* 司徒 or officer charged with the general superin-

tendence of the government and education of the people; that bird being regarded as pious and well conducted, and education being regarded as the great means of making a people orderly and settled in their mode of life. From this notion about the dove the word *chiu* 鳩 came to mean to bring to and keep in a state of order and peacefulness, thus *chiu-min*[13] 鳩民 is said to be equivalent to *an-min* 安民 meaning to tranquilize the people. Another attribute of these birds is impartiality, a virtue which is assigned especially to the wood pigeon in the treatment of her seven young ones. In the morning she feeds them, beginning at the highest and going down to the lowest, and in the evening when feeding them she reverses the order.[7] While the Chinese are aware that the mother feeds the little doves from her mouth, they do not seem to know anything of the peculiar apparatus by which the food is prepared; at least I have not found any trace of such knowledge. They believe, however, that the powers of swallowing which these birds possess are remarkable, and that even up to the time of old age they never choke. It is from this coupled with the idea of filial piety in the dove preserving its parents to a ripe old age, that the staff which the emperor and the great officers of the kingdom present to old men is called the *dove staff*. About the middle of autumn the District Magistrates and the Intendants of Circuit present the old men of 70 years of age belonging to their jurisdiction with a jade staff and some rice congee: to those of 80 or 90 years they present a jade staff of 9 feet (*chĭ* 尺) long and surmounted by a dove.[7] This is the prescribed procedure, but I do not think that many of these jade sticks are to be found, the less expensive article *wood* being much more generally used. That which is symbolised by this act is a wish that the life of the donée may be prolonged and that his power of swallowing and digesting his food may not wane—long life and good digestion being attributes of the dove.

I now pass to the consideration of the offices which these birds are supposed to perform for the good of mankind. Several isolated instances of acts of kindness performed by doves to particular individuals are recorded in Chinese history, and they are supposed to have a considerable amount of tender feeling for suffering mortals. A famous case is that of Han Kao-tsu 漢高祖. This emperor had been defeated by the usurpur Hsiang-yü 項羽, and was flying for his life with Yü in hot pursuit. Just as he was almost getting up to Kao-tsu the latter jumped into a sort of pit, and a dove immediately perched on the side and began to coo.

Yü coming up and seeing the dove seated there, thought that it was impossible his enemy could have concealed himself there, rushed on, and allowed the unfortunate emperor to escape. There are other good deeds, however, performed by the dove which are of constant recurrence and of general utility. Of these one is the informing husbandmen of the time for sowing their seed. This office is assigned more especially to the *shï-chiu* 鳲鳩 or wood pigeon, and nearly all the aliases of this bird are derived from the above notion. Chang-hua 張華 says expressly—"At the commencement of the agricultural labours this bird flies to the mulberry tree where it coos, as if saying the five [kinds of] grain can be sown abroad (*pu-chung* 布種), and therefore it is called *grain scatterer*" (*pu-ku* 布穀). What could have led a scholar like Mr. Swinhoe to translate these two words as the name of a bird by "cloth grain," as he has done in his translation of the Zoological chapter of the Tai-wan-foo-chï quoted above? Now we have seen that the Chinese mix up notions about several other birds in their accounts of this family; and I fully believe that the cuckoo is one of the birds which have been grouped under the term *chiu* 鳩. One of the names of the dove is *ku-chiu* 鵠鳩 or as it is more generally pronounced *ku-kiu*, and this is no bad imitation of the cuckoo's call. Besides the cuckoo does not usually build a nest, and does call in the spring time, and neither of these things can be said especially of any dove. Again one kind of dove is called the fierce or cruel dove (*shwang-chiu* 爽鳩), and the young cuckoo is proverbial for its cruelty. Besides Mr. Swinhoe says expressly that the *pu-ku*, which it will be remembered, is the same as the *shï-chiu* or wood pigeon, is "the crow pheasant or larkheel cuckoo, Centropus affinis," and in Amoy, as Mr. Swinhoe says, the cuckoo is called the dove hawk. In the picture which the Chinese give of the *pu-ku* also there is more resemblance to a cuckoo than to a dove, though this is a matter of very little importance as their representations of animals are generally very bad indeed. Accordingly, I have arrived at the conclusion that the *shï-chiu* 鳲鳩 is a wood pigeon or a dove of some sort, but that the *pu-ku* 布穀 though said to be the same as the former, is really a cuckoo. And here it must be remarked that the dove and the hawk are represented by the Chinese in intimate connexion. Some suppose that the hawk does not kill the dove, just as some old authors of the west have thought that the windhover is a friend to the dove and never kills her. Other birds of prey,

however, seem to be mixed up by the Chinese with the hawk in this respect. One author says that the *hsiao* 鴞, which Dr. Williams says is a sort of barn-owl, is produced by the dove; and, as has been stated above, the text-book on Ornithology makes one of the three young ones of the dove to be a bird of prey. There is also the story of the owl meeting the dove, and on telling that bird that he was about to go to the east, of the dove advising him to change his note as it would be disliked by the people of the east.[7] With reference to the above matters, it is perhaps worthy of notice that just as Chinese writers assert that the cuckoo becomes changed into a hawk, so in parts of Germany and England up to the present time many persons believe that the cuckoo is in summer changed into a sparrowhawk.[14] I cannot say what is the origin of this belief in Europe, but it is certain that the cuckoo has in many places been regarded as a strange and mysterious bird.

"O Cuckoo! shall I call thee bird,
Or but a wandering voice?"

The ancient Greeks made it the sacred bird of Here, and, if I remember aright, its figure adorned the top of her sceptre. Why it should be confounded with a dove does not seem very clear to me, though the idea is perhaps not stranger than many popular ideas about birds among our ancestors or even among ourselves.

Another kind service which the dove performs for man is to announce the near approach of rain, and the return of fine weather. When the sky becomes cloudy and rain is impending the cock dove sends away his mate; she is distressed at this temporary separation from her love and coos dolefully from the ridge of a house, thus warning the husbandman to prepare for the coming rain. The dove's coo has often been represented as indicative of distress by others than Chinese. The Latin word *gemere* means to lament or mourn, and it is the word which expresses our word *coo*. So also Thomson makes the dove mourn and lament though for a different reason, and in Spring he represents the rest of the birds as singing merrily.

"While the stock dove
"Breathes a melancholy murmur through the whole."

When the rain has ceased and the sky has become clear the cock then mounts the roof of a house or the top branch of a tree and pleads with his mate to come back to his lonely nest. It is

a sin to do it, but I cannot refrain from quoting a stanza of Wordsworth which expresses in exquisite language what the Chinese thus state in few and prosaic words.

"I heard a stock dove sing or say,
His homely tale this very day,
His voice was buried among trees,
Yet to be come at by the breeze;
He did not cease; but cooed—and coo'd;
And somewhat pensively he woo'd;
He sang of love with quiet blending,
Slow to begin, and never ending;
Of serious faith and inward glee:
That was the song—the song for me."

In England the owl, which the Chinese suppose to be hatched by the dove, is popularly regarded as a foreteller of rain—so also is the woodpecker. The white dove is said in the Tai-wan-foo-chĭ to coo at the fifth watch—to know the times and seasons, and to mark the limit of each period of time by several continuous coos, it is also said that this bird "in blowy weather dances its wings and moves in circles."

Regarded from a medical point of view also doves are of considerable utility to man. Their flesh is said to be sweet, plain, and free from poison. It makes the eye clear, and when taken in large quantities it increases the essential elements of existence aiding both the active and passive constituents thereof. When taken by a man long enfeebled by disease it repairs his constitution, and delivers him from a liability to choke. The explanation of this notion would be that doves never choke, but swallow and digest their food well, and that from this fact and the general steadiness of their lives they attain to a great age—accordingly any person eating their flesh is supposed to receive some share of the above qualities. As a doctrine nearly parallel to this may be mentioned that of Bacon and others in the west, viz:—that the flesh of long lived animals when eaten by any one tends to give long life to the eater. Aristotle and Bacon both attribute long life to doves, and the latter recommends (along with other long lived birds) "wood pigeon (especially if the flesh be slightly salted)" as an aliment likely to make the juices of the body less liable to be preyed upon.[16]

The blood of doves when cooked and taken internally is an antidote to the bites of poisonous insects, while its excrement

cures ear sores and running ulcers. In order to cure the ear sores it must be mixed with another medicine named *ye-ming-sha* 夜明沙 and blown upon the sore. *Ye-ming-sha*, that is, night clear sand—is the name of a dark brown powder, very coarse and not unlike tea dust. It is said to be made of the excrement of bats and really contains a considerable admixture of Cantharides. It is used by Chinese doctors at present as a cure for weak eyes, and the reason is that as bats fly in the dark they must have excellent powers of vision, and anything belonging to or proceeding from them must share in this quality. Of the *shĭ-chiu* or wood pigeon it is written that its flesh is sweet, delicate, and without poison. It also gives one a composed mind and enables him to do with little sleep. Its foot and leg bones have the very delightful quality of exciting affection between husband and wife. If on the fifth day of the fifth moon the husband take one of these bones and the wife take one, each putting the bone into a basin of water, one from the left and the other from the right side, the two bones will come together, and float together, thus indicating a long and happy union to the parties trying the experiment.

I have not found in my reading hitherto any notice of the death of a dove recorded or described by a Chinese author, and it is not easy to guess how and where he would suppose the bird to die. Does the old cock die in the first nest he stole from the magpie, with affectionate doves of the first and second generation tending him assiduously until he ceases to exist? Or does he never die at all but live on for ever with his mate, renewing his age with every transformation? With this uncertainty as to the fate of the dove ultimately I bring my remarks to a close.

The meagre and imperfect account which I now conclude of the notions taught by the Chinese, and especially by Chinese scholars, concerning the family of the pigeons will, I hope, give at least a faint idea of the superficial and erroneous manner in which they have studied nature. Taking the high *a priori* road they have formed hypotheses about her and her working, and have never tried to verify these hypotheses by actual experiments. Errors of every kind, accordingly, disfigure their writings whenever they treat of the operations and agencies of Nature; and by the great force of authority these errors are repeated from book to book and from age to age.

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Part II.

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8. *Pên-ts'ao.* Article 鳲鳩.
9. Do. Article 青鴿.
10. Commentary on the *Shī-ching.* Chao-nan, I.
11. *Kwang-shī-lei.* ch. 35. 鳩.
12. See Lee-tzŭ's 列子 notion as given in Kang-hsi under.
13. Kang-hsi's Dictionary, under the character 鳩.
14. Kelly's Indo-European Traditions and Folklore, ch. 3.
15. The word *Ch'i* 氣 I have found very hard to translate in many passages so as to convey the idea in the Chinese writer's mind. I think the term "humour" as used by old writers is perhaps the nearest approach to it. That portion of the constituents of man's life which he shares with all other living creatures is perhaps what is at least included in the word.
16. Historia Vitæ et Mortis.

ARTICLE XIII.

RETROSPECT OF EVENTS IN CHINA AND JAPAN DURING THE YEAR 1867.

By THOS. W. KINGSMILL, Esq.,

Corresponding Secretary.

When on a previous occasion it fell to the lot of the writer of the following notes to compile for this society a retrospect of the important events occurring in the year 1865, a hope was expressed that the Chinese government had cordially, though slowly, entered on the path of progress. In this hope the writer is now sorry to express himself disappointed: on the contrary the year has to all appearance been one of decided retrogression in all matters relating to the affairs of the empire, whether in its internal relations with its own subjects, or its external intercourse with foreign powers. During the year a general feeling of uneasiness has been apparent, and neither amongst the Chinese nor with foreigners have feelings of cordial unanimity been displayed.

The approaching revision of the treaty of Tien-tsin, affecting as it was felt it must the whole political and social relations of China with foreign powers, was the main topic of interest; but the year has been comparatively barren of events of political importance. In the dearth of politics various economic topics of importance were brought forward which have added much to our knowledge on the subject of the working of the Chinese Guilds, and the general system of co-operative trading adopted by the native merchants.

During the year China was in that state of chronic rebellion which has marked the misrule of her government for the last twenty years. In the south-eastern provinces indeed, the seat of the great T'aip'ing insurrection, rebellion had so worn itself out that profound peace may be said to have prevailed;—a peace however which in many localities, and especially in the provinces of Kiangsu, Anhwei and Kiangsi, might be attributed rather to the depopulation of the country than to other causes. The most

notable instance of this depopulation was furnished by the country lying south and east of Nanking, where thousands of square miles of country were described as lying untilled and rapidly returning to a state of nature; in fact as being to all intents and purposes as much a new country as the prairie states of North America. Other vast tracts were however known to have been equally depopulated by the wretched system of fighting adopted by both sides during the insurrection. Towards the great object of resettling these districts, the government had made but slight advance; the communications were notoriously bad, and no security existed for the new inhabitants that their productions could be conveyed to a fair market. The social relations of those of the old inhabitants who had returned to their homes were described by those most intimately acquainted with the people as utterly uprooted; the ties of family, so powerful in China under normal circumstances, were broken through with a naturally deteriorating effect on the morality of the masses. In the larger cities numbers of beggars, the offspring of the bands of thieves and rebels who for thirteen years wandered unmolested over the country, huddled under the ruins of devastated houses or in huts of reeds scarcely more fit for human habitation; while in the country the habits of unthrift engendered by the unsettled state of existence during the rebellion still affected those few inhabitants who had contrived to survive.

While such was the state of a great portion of those provinces where government had been re-established, the districts which had been spared the T'aip'ing scourge were for the most part afflicted with new insurrections, scarcely less formidable from not possessing a recognised head or object.

The Huquang provinces for some years notoriously the worst governed in China were left completely at the mercy of bands of marauders. From November 1866 till the following April the neighbourhood of Hankow was more or less in the hands of insurgents who wandered without molestation along the north bank of the Yangtse from Hankow to the borders of Anhwei and Honan, occupying at various times the entire of the prefectures of 漢陽 Hanyang and 德安 Tehngan. In Honan disturbances likewise occurred; in Kweichow and Sz'chuen the inhabitants were in their usual state of insubordination. Yunnan however offered the most curious instance of disaffection; in the south-western portions of the province, where Mahommedans were in the as-

cendant, these restless subjects were said to have elected an emperor of their own. In any case it was not denied by the Chinese that their power had been reduced to a minimum; their mandarins were indeed allowed to reside and exercise their functions within their districts, but under the control of local committees who scrutinized their acts and dictated their despatches.

Fortunately for the inhabitants these local rebellions were not marked with the same mad spirit of devastation which characterized the T'aip'ing movement; there seems to have been little loss of life, and except where resistance was offered no wholesale destruction of property. Hence the curious result that in the face of the unsettled state of the country foreign trade at Hankow actually, though slightly, increased.

Such however was the weakness of the established government that it is said the provincial authorities of the Huquang more than once induced the withdrawal of the insurgents by bribes; a curious instance of malversation of funds which had been placed in their hands for the maintainance of an army sufficient to keep order and induce respect.

Such misappropriations of funds raised for special purposes are however the rule in China, and more especially are the sums collected for military purposes diverted; the standing armies supposed to exist in all the provinces are to be found only on paper; the high officials draw the pay but refuse to disburse it, till to prevent an open disclosure they find it often more profitable to divide a portion with those enemies it was intended to repress, than to keep their provinces in order and themselves in comparative poverty.

In the northern provinces of China from the seaboard to the extremity of Kansuh a more formidable rebellion raged. Honan and Shantung were overrun by insurgents, with whom 李鴻章 Li Hung-chang, so well known from his connection as Futai with the campaign of 1862-63 in lower Kiangsu, kept up an unequal contest. His position was well chosen; with his force resting on the line of the Imperial Canal between the old and new beds of the Yellow River he was enabled to draw supplies from the new arsenal at Nanking, as well as to divide the main body of the insurgents into two separate portions, one in Honan and the other in the eastern portion of Shantung. In the early part of the year his troops met with little success, and it was at one time feared that he would probably have to capitulate, his communica-

tions with Nanking having been for some time intercepted. One of his officers 郭松林 Kwo Sêng-lin who formerly acted with him in the Kiangsu campaign and who afterwards was in command at the final break up of the T'aip'ing rebellion at 常州 Changchow, having led a body of troops into Shantung, met with a severe defeat, his troops were dispersed and he himself captured and by some accounts cruelly mutilated; subsequently however he contrived to make good his escape.

Affairs seem to have continued in this state till the month of July, the Nienfei swarming in the eastern portion of Shantung. At one time they had surrounded 濟南府 Tsi-nan foo, at another they threatened Chefoo, while large bodies seem to have crossed and recrossed the Imperial Canal without molestation. Confining themselves principally to plunder in the open country they do not seem to have taken any important towns, but the speed at which they marched from one district to another always enabled them to elude the pursuit of the heavily encumbered Imperial troops. Under these circumstances Li, having received from Peking a severe reprimand for his want of success, conceived the singular expedient of surrounding the insurgents; for this purpose he drew a double line of intrenchments across the peninsula from 阜平 Fup'ing to 萊州 Laichow dividing his army into small garrisons of 500 men at considerable distances, while he wrote to Nanking for large reinforcements to be sent to act on Shantung by sea. As might have been expected his scheme proved abortive; the reinforcements never arrived, nor indeed as Nanking was itself denuded of troops, could they have been sent; a portion of the insurgents escaped by sea round the extreme north of his lines, while the main body readily burst through his weakened forces and passed into his rear. A portion however under a leader by name 賴文光 Lai Wen-kwang, formerly a chief in the T'aip'ing ranks, seems to have remained behind; after varying success these were effectually dispersed, and Lai himself who had crossed the old bed of the Yellow River with a body of men and attempted to escape by outflanking Li's forces, was captured with the greater portion of his band in the neighbourhood of Yang-chow. This small success seems from subsequent events to have been the only one which awaited the Imperial arms. The main body of the Nienfei having entered Honan, effected there a junction with a portion of the Mahommedan rebels marching from Shênsi, and at the end of the year their

united forces were before 保定府 Paou-ting foo with complete command of the communications of the province of Pechili.

In the northwest the rebellion of the Mahommedan subjects of the empire was if possible more formidable: few reliable reports come to foreign ears of the state of affairs in these regions, but the constant appointment and degradation of officers noticed in the Peking Gazettes point out the importance of the movement. 左宗棠 Tso Tsung-tang, Viceroy of Fuhkien was within the year ordered to take charge of the Imperial troops, and 蔣益禮 Tsiang Yih-li, Futai of Kwangtung was likewise directed to take part in the campaign. It is not a little remarkable as indicative of the feeling of uncertainty as to the future prevailing in China that both these officers were reported to have joined the insurgents, though the rumours proved to have had no other origin than the fears of the government. The departure of Tsiang Yih-li from his post at Canton was marked by a popular ovation, a most rare thing in China, and all along his journey to the north of the province he was met by deputations from the different towns declaring their sorrow at his departure; in fact his removal to the scene of war was attributed to jealousy of his popularity on the part of the Peking government.

For the conduct of the campaign in the northwestern provinces 武昌 Wuchang in Hupeh was made the basis of operations, and here large quantities of arms and munitions were collected. Owing apparently to the bad order preserved, in the month of November the powder magazines containing some hundreds of tons of powder exploded, causing an enormous loss of life and property. So great was the shock that at Kiukiang about 120 miles off in a direct line the explosion was felt like the shock of an earthquake, the houses distinctly vibrating as if heavy articles were being moved about. A mutiny was said in the following month to have taken place amongst the Imperial troops at 襄陽 Siangyang-fu from the usual cause, the soldiers having received no pay, their wages having been appropriated by the high officials at Wuchang.

But besides these more important movements the greater portion of the north of China has been more or less disturbed by wandering bands of brigands, and almost under the very walls of the capital itself have they been permitted unmolested to carry on their depredations. In July a small body sacked the town of Wang Kia Kow 20 miles from Tien-tsin; in November Mr. Burlingame,

sometime United States Minister at Peking but then acting as Chinese envoy to western powers, was detained on his way to Tien-tsin from the capital at the town of Hoo-si-woo till foreign succour arrived from Peking and Tien-tsin, while since the conclusion of the year armed bands have twice taken possession of the communications between Peking and the sea.

The empire is in fact rapidly relapsing into the same state of utter disorganization which marked the close of the Ming dynasty, and there is every reason to believe that in many of the districts to which foreigners do not usually have access the state of affairs is, if possible, worse.

In the west affairs were equally gloomy, Ili and Turkestan were *de facto* lost to Chinese rule; in Thibet difficulties had arisen with the neighbouring state of Nepaul; to attempt to mend matters Sir Jung Bahadoor, the Rajah, sent an embassy to the court of Peking; with characteristic obstinacy and folly this embassy was turned back on arriving at 成都 Chengtu in Sz'-chuen. The cordon was in fact getting gradually tightened and the influence of China over central Asia so perseveringly and carefully built up by former sovereigns had entirely collapsed. In the extreme west Russia had seized the greater portion of Khokand, Samarkand and Bokhara were at her mercy; in the southwest English influence was gradually spreading along the eastern flank of the Himalayas; France in the extreme south had succeeded in annexing the greater portion of Annam and was endeavouring to advance along the line of the Meikong. On all sides troubles were incident yet amid all a sullen and utter impracticability was the only sign of life displayed by the moribund government of Peking.

The foreign relations of the court at Peking were as little satisfactory; an increasing spirit of encroachment on the liberty of trade and a dogged opposition to measures of progress marked the course of the year. A curious case of direct interference occurred in connection with an important case tried in the Supreme Court at Shanghai, where the Taotai gave authority to the silk guild to forbid their members to trade with certain foreign houses, and actually allowed one man to be fined a considerable amount for breaking through this arbitrary rule. Not content with this the Taotai, whose name 應寶時 Ying Paou-shih deserves to be recorded, drew up a code of rules on his own authority for the regulation of the silk trade of the port. These

rules were however properly quashed by the action of the English and French Consuls and the Taotai forced to issue another edict repealing the former. In several other cases the Chinese attempted to issue similar regulations framed with the intention of interfering with foreign trade; one of these laid down a code of rules for the conduct of foreign ships in case of shipwreck; another attempted to set up an obnoxious code of rules for the establishment of a new "Mixed Court" in the foreign settlement at Shanghai; a fourth issued by the 總理衙門 Tsung-li Ya-mên at Peking forbid contrary to treaty the charter of foreign vessels by natives unless under certain objectionable conditions. This latter was the more remarkable as it was issued under the pretence of being a progressive measure intended to confer on vessels of foreign build owned by Chinese the same privileges as were enjoyed by those sailing under foreign flags. It is a curious corollary to the spirit which seems to have dictated these rules that no native merchant was found to take advantage of the supposed concessions. At Canton the spirit of the Chinese authorities was shown in their interference with the cotton trade of Hongkong, and by the attempt made to establish a blockade of the harbour, revenue cruisers having been stationed at all its entrances to overhaul native craft entering or leaving. At Hankow the circumstances attending the failure of the English house of Mackellar & Co. led the Taotai at that port to attempt interferences similar to those of his colleague at Shanghai.

But of all these cases the most glaring was the continued opposition offered to the importation into Shanghai in foreign bottoms of beancake from Newchwang. This right though expressly withheld by the treaties of Tien-tsin was afterwards granted in that made with Denmark; yet in face of this direct legalization such measures were taken at Shanghai by working on the fears of the native traders that the import dwindled away, and finally in the year 1866 was altogether extinguished. Proclamations were openly posted in the city and neighbourhood of Shanghai threatening fines and confiscation against any native who should presume to purchase the forbidden article; and so thoroughly were the fears of the natives worked on that when in August of that year two British vessels arrived with cargoes of that commodity, they were forced, after in vain waiting for a market to proceed to the south of China and sell their cargoes at a considerable loss. Although repeated complaints had been made to

Peking on this subject so abjectly helpless was the government there that no relief was effected, till in June 1867 the British Minister had a personal interview with the Viceroy at Nanking which resulted in the withdrawal of the illegal opposition. The result proved how great was the burden laid on trade; from that period to the closing of the season in November no less than 612,476 piculs of beancake and 102,610 piculs of Peas arrived at the port in foreign craft.

Next to these direct interferences with trade the antipathy of the government to make amends for old grievances was conspicuous. Of these the two most important were the Sungyang claims for damage done to foreign goods in transit through Hupeh by disorderly Imperial troops, and the so called Nanzing duties, the latter being duties over and above the legal rate levied on silk passing that place in the years 1861 and 1862. After a long correspondence and a personal interview with the Futai of Chehkiang in his provincial capital, the latter have been settled though not altogether satisfactorily to the parties interested; but nothing is known to have been arranged with regard to the former. There seems to be no doubt whatever that the system of centralization attempted to be set up at Peking has worked most unsatisfactorily for foreign interests, and it is to be remarked that none of the complaints made have been settled through the capital, but only by reference to the provincial authorities or by bringing actual influence to bear upon the spot. In fact the power of the central government has become reduced to a minimum and its commands are only obeyed when they fall in with the wishes of the more able provincial governors.

During the year the following changes amongst the Chinese officials may be noticed; the most important being the resumption of office by 曾國藩 Tsêng Kwo-fan as Viceroy of the Two Kiang while Li Hung-chang was appointed in his place Commander-in-chief in Honan and Shantung. 左宗棠 Tso Tsêng-tang Viceroy of Mincheh was ordered to the north-west as commander in those provinces, 馬新詒 Ma Sin-yih, Futai of Chehkiang being appointed acting Viceroy at Foochow in his place. The acting Viceroyalty of Wuchang held titularly by Li Hung-chang was conferred on 郭柏蔭 Kuo Po-yin; while 官文 Kwan wên, to whose incapacity much of the disaffection which prevailed in the Huquang provinces was attributed by many, was appointed Viceroy of Pecheli, which province he has

succeeded in reducing to the same state of disorganization which marked his previous rule.

At Peking two events of interest to foreigners occurred, the first the establishment of a college at Peking to teach the rudiments of foreign science, the latter the appointment of the Burlingame mission. Though scarcely more than tentative and on a scale and system by no means such as to deserve the encomiums passed on it, the college met with much opposition from the representatives of the old school. Foremost amongst its opponents was 倭仁 Wo jên, a Tartar holding the office of Grand Secretary and President of the Hanlin Yuen, as well as connected with the present reigning family, who presented a memorial to the Throne stating that there was a sufficient amount of ability in the empire "and should persons skilled in astronomy and arithmetic be wanted they would certainly be forthcoming." On being requested to bring such forward when found he was forced to confess his inability. Without entering on the question of the status of the college it may however be remarked that some of the appointments seem to have been very injudiciously made, so that the scheme has hardly had a fair trial.

The Burlingame mission has given rise to considerable diversity of opinion amongst those who take an interest in Chinese politics, one party considering it an effort of the retrogressive party to get rid of pressure from without, while others are well content to await the result before pronouncing a final opinion.

The name of Mr. Hart, Inspector General of Customs, has been mixed up more or less with the scheme. In the absence of information as to the real objects of the mission it is remarkable that it has already been made the excuse for delaying the development of the coal mines in the neighbourhood of Nanking, while the sums set aside to provide for the expenses of the mission are understood to press so heavily on the impoverished exchequer at the capital that monies raised and intended for other purposes have been diverted from their proper channels. Whether this is the case or not cannot be ascertained, but it has been a source of complaint that the works promised to be executed for the improvement of the harbour approaches at Shanghai have been allowed to remain in abeyance, while the tonnage dues out of which these expenses should be met have been regularly received by the Chinese Government.

The mission is understood to consist of the following officers. Foreigners Mr. Anson Burlingame, late U.S. Minister at

Peking, chief; Mr. J. McLeavy Brown, acting Chinese Secretary to H. B. M. Legation at Peking, Secretary of Legation; Mr. Deschamps acting Commissioner of H. I. M. Customs at Kiukiang, second Secretary:

Of Chinese the following accompany the mission.

Chikang 志剛 a Manchu who ranks as being on the list for promotion to a Taotai-ship and has been for three or four years attached as a Secretary to the Tsungli Yamên; Shwan Kiaku 毅家孫 a Chinese borne on the staff of the Revenue Board as an under Secretary, but who has recently been employed at the Tsungli Yamên in a similar position with Chikang. Their appointment to the mission has given each of them the button of the second rank, and to the latter the decoration of the Peacock's Feather; Chikang having had this conferred on him for former services. They are styled "Ministers for the arrangement of matters connected with the intercourse between China and foreign powers." Besides these, six students from the Tungwênkwan 同文館 have been sent as attachés; the Chinese portion of the embassy consisting of about thirteen official members in all.

The greatest element of weakness in this first attempt at an embassy to western nations seems to be the position of the foreigners attached to it; the two Chinese officials, men of respectable abilities in a subordinate office, can scarcely be looked upon as the representative of any large or important party; while it is doubtful how far Mr. Burlingame's arrangements may be considered as binding on themselves by his employers, or if accepted by them, how far they will be carried out by the provincial governments. It is suggestive of the disorganization of the empire that Mr. Burlingame and his party were arrested in their progress from the capital to Tientsin by the proximity of a band of brigands, and it was thought necessary by that gentleman to call in foreign aid from Peking and Tientsin before continuing his journey; while is the month of January, Mr. Brown in travelling south found everywhere traces of rebel occupation, large bodies having crossed his road a few days before his arrival; the villages along the route in default of Imperial protection having had to throw up earthworks for their own defence.

As stated in the beginning of this retrospect the subject of greatest importance, as affecting foreign interests, discussed was the approaching revision of the Treaty of Tientsin. The British

and French ministers both invited in this matter advice and suggestions from the subjects of their respective nations. The invitation of the British minister was cordially responded to on the part of the merchants residing at the ports of Tientsin, Chefoo, Shanghai, Chinkiang, Kiukiang, Hankow, Foochow and Amoy, while at Hongkong a similar request from the Governor was replied to on behalf of the Chamber of Commerce at that Colony. A remarkable unanimity of feeling was the distinguishing feature of these addresses; with one or two exceptions they were confined to the detail of grievances caused through the bad faith of the Chinese in the carrying out of the Treaty of Tientsin. It was generally allowed that most of the privileges sought were really contained in that instrument, which the experience of ten years had proved to be wisely drawn up, and that had the plain meaning been adhered to on one side or insisted on by the other there would have been little cause of complaint.

Foremost among the alleged grievances was the levy of illegal taxes on foreign merchandise in transit to or from the ports, and in some instances complaints were made that even at the ports themselves attempts were made to levy illegal exactions. Others were the obstacles thrown in the way of foreigners travelling or trading in the interior, and the prohibition to their boats carrying cargo or passengers of penetrating the interior waters; the prohibition to foreigners of the right of purchasing land or erecting houses in the interior; and the continued misapplication of the Tonnage dues. The failure of the Chinese Magistrates to grant redress in cases where natives had been guilty of fraud, which had resulted in severe losses to foreigners in several of the open ports was likewise an almost universal subject of complaint; as also the unequal manner in which the present Tariff affected different articles of trade; as an instance coal was adduced, and it was shown that in some cases the amount of duties levied on Kelung coal, (the only mines available at present to foreign vessels) amounted to no less a sum than twenty three per cent. in the cost of the article. The addresses were likewise unanimous in urging some arrangement whereby it might be possible to open mines for coal and other minerals with which China is known to be plentifully endowed, and for the introduction of railways and generally improved methods of transit. They were the more pressing in these topics as they felt that the most immediate and direct benefit would accrue to the Chinese govern-

ment itself, enabling it first from the large sums accruing from royalties to increase the effectiveness of its rule, and in the second place from improved communications to be in a better position to put down internal rebellion, from the ease with which large masses of troops could be thrown upon any required spot. The right to import salt in foreign vessels subject to the regulations of the Chinese government was urged in many of the memorials; while one of the ports petitioned that all Customs dues should be repealed and the port made *de facto* free, leaving it to the Chinese to make their own arrangements for the collection of duties outside its limits.

With these few exceptions the demands made were simply for a better carrying out of the existing treaties, which it was felt could be readily amended so as to suit the gradually altering circumstances of trade.

Independently of these memorials the subject of opening the coal and other mines of China was brought prominently forward. Mr. Markham, H. B. M.'s Consul at Chinkiang, having learned of the existence of valuable coal mines near Nanking, made them the subject of a communication with the Viceroy; these mines were examined by the writer of these notes and found to promise a fair yield of coal; in addition his hasty survey of the country led to the discovery of enormous masses of iron ore of the best description and admirably situated for working. Reports on both these subjects were forwarded in due course to Her Majesty's government. Unfortunately as yet the Chinese authorities have refused to act, the equivocal answer returned by Tsêng, the Viceroy (before alluded to), being that "all such questions had been referred to Mr. Burlingame, who would make them the subject of special communications with foreign courts."

In another instance, in the island of Hainan mines of carbonate of copper of great purity were discovered in that portion of the island inhabited by the native tribes, and arrangements were made with the approbation of the Futai of Kwangtung to work them and export the produce in foreign ships. It is much to be regretted that in this instance the known jealousy of the foreign Customs establishment at Canton obtained from the Viceroy the withdrawal of this permission; the worn out excuse of disturbance of the Fêngshui was the pretended obstacle. The foreign Customs have effected so much good in the proper regulation and tabulation of foreign trade as well as in many other ways,

that it is with regret that attention is called to this case where their interference has had a directly detrimental effect.

Mr. Swinhoe, H. B. M.'s Consul at Taku in Formosa, likewise explored the Pescadore islands in which coal was reported to occur; this was made the subject of a communication between Sir Rutherford Alcock and the Viceroy of Fuhkien with the usual result, it being pleaded that the Fêngshui would be disturbed; the deposits did not seem sufficiently rich to induce a further discussion of the matter.

At Hongkong the action of the Chinese government led to peculiar causes of complaint: the principal of these was the practice of charging double duty on goods in transit between Canton and the northern ports transhipped in Hongkong harbour; as a line of steamers runs regularly between the two places, this was felt to be a hardship, compelling steamers from the northern ports when carrying portions of their cargo for Canton to go up the Canton river at considerable expense. Another cause of complaint referred to before was the manner in which custom-house cruisers watched the entrances of the harbour, preventing freedom of trade in native vessels; while a third was the illegal manner in which a monopoly had been made out of the camphor trade with the island of Formosa. In the previous year a steamer belonging to the colony, named the *Prince Albert*, had been seized by a revenue cruiser under the orders of the foreign Customs at Canton under peculiar circumstances; the colonial authorities took up the matter warmly in behalf of the owner, and a long correspondence ensued with the British Representative at Peking, who seemed however to lean to the side of the Chinese, the matter was at last compromised by the payment of a fine of $4,000, but the conduct of the foreign Customs was generally believed on the spot to have been unjust and vexatious.

The heavy expenses of the Hongkong Government were a general subject of complaint and there was a marked decadence in the commercial prosperity of the Colony. A severe Typhoon during the year damaged the new Praya facing the harbour, which led to a legal contest between the government and the owners of the lots adjoining the harbour. An extensive fire on the 28th November which raged along a considerable portion of the Queen's Road, likewise caused a considerable loss to the Colony.

At Shanghai matters were not much better, though commercially the northern port had the advantage over its southern

rival; No great losses seem to have been made nor did any serious accident disturb the even course of the year, but on the other hand no new enterprise marked its progress. The status of the Municipal Council remained still undetermined, no action having been taken by the governments most interested.

The ports on the river Yang-tse and in the north were in a state of gradual decadence, much of which however must be attributed to the interferences with foreign trading noticed above.

One new enterprise was however successfully initiated during the year; this was the establishment by the Pacific Mail Steam Ship Company of a line of steamers under subsidy from the U. S. Government between San Francisco and Hongkong, calling at Yokohama and with a branch to Shanghai. The first ship of the line the *Colorado* left San Francisco on the 1st January 1867, arriving at Hongkong on the 31st of same month; at first the line was worked only quarterly, but as new vessels are prepared it is intended to be changed to a monthly service. On the whole the line is stated to have been worked successfully, though complaints as to the irregularity of the departures, have been made in many quarters.

In Japan events of importance occurred during the year. Arrangements were made for the opening of the port at Osaka and Hiogo on the 1st January 1868, and the foreign Ministers on their visit to settle preliminaries were gorgeously entertained by the Tycoon generally known from the name of his former office as Stotsbashi. Liberal arrangements were also made by the Japanese government with reference to the rebuilding of the foreign settlement at Yokohama almost entirely destroyed by fire the previous autumn. Few of those political disturbances which disgraced the intercourse of natives with foreigners in previous years occurred in the present, though the murder of two sailors at Nagasaki still unexplained, was nearly the occasion of a serious misunderstanding with Great Britain. The power of certain Daimios who were opposed to the Tycoonate was found so insupportable by the then occupant, that following Japanese custom he resigned in favour of the next heir. As subsequent events have entirely revolutionized the government it will suffice to say that Stotsbashi or rather Yoshi Hisa as his real name is known to be, proved himself during his short tenure of office an able and enlightened prince, and earned the respect of most foreign powers.

With the Corea nothing seems to have been done to open an

intercourse; the United States are however understood to have two vessels of war on the coast to seek for news of the fate of the crew and passengers of the *General Sherman* reported to have been brutally murdered by the Coreans in revenge for French interference. An attempt by the U. S. Frigate *Hartford* to punish the savages of Formosa for the unprovoked murder of the crew of the *Rover*, a vessel sailing under American colours, which was wrecked in the coast in the month of March, met with but partial success and resulted in the further death of Lieut. McKenzie an officer of much promise. Since then the action of the United States Consul at Amoy has resulted in a compact with the tribes, who have promised in similar cases to grant assistance to shipwrecked crews.

On the 18th December a severe earthquake was felt in Formosa; at Tamsui much damage was done and many lives lost, but unfortunately no details are available as to the exact time, and direction of the wave. The shock was felt at Shanghai at 9.57 A.M. and was also experienced at Ningpo and Kiukiang.

It would not be right to close this retrospect without allusion to an adventurous journey undertaken by Mr. T. T. Cooper, formerly an officer of this Society. This gentleman left Shanghai alone in the month of September with the intention of penetrating overland to India either by way of Sudya or the southern route by Bhamo in Burmah. Owing to obstacles placed in his way his actual departure was postponed till the 4th January 1868, at which time he finally left Hankow; since that time news has been received of his arrival at Hi yan ki on the extreme western portion of Sz'chuen, a further point than has been hitherto reached by any independent traveller. It is hoped that the courage and good tempt which have hitherto marked his conduct on the journey may enable him to penetrate through the hitherto unknown districts which lie between the Ya-loong and the upper waters of the Bramapootra.

MISCELLANEOUS.

The following description of a flood in the Han whose influence was experienced as far as Hankow, where the water after falling some feet below its summit level again rose so high on the 22nd September as to inundate the British settlement is extracted from the *Hankow Times* of October 5th:—

"Such an event as this is evidently rare, and many speculations of a superstitious character have been put forth by the native mind, to account for the flood. Dragons, each marching at the head of some nine boa-constrictor-like creatures, and presiding over its particular stream, are confidently stated to cause all this trouble. More reliable information received on Wednesday, September 25th, conveyed the intelligence that in Shansi, in the prefecture of Han-tsung-fu, there had burst forth from the ground, as from a natural Artesian well, great torrents of water, which had to come down by way of Shiang-yang-fu, Ngan-louh-fu, T'ien-men-Shien and Nien-yang-tsow, all places in Hupeh. At T'ien-men-Shien, a low district, ordinarily preserved from the usual effects of the annual freshets and inundations by embankments on every hand, the flood seems to have wrought its worst consequences. The dykes being soon over-topped, and the city-wall being either broken down or over-passed, the whole town was submerged. Large numbers of persons, who watched the approach of the waters, and compared it to a thick cloud approaching, were drowned, with others of the inhabitants of the district. The large mart of Fan-tseng is said to have suffered severely from the sudden influx of water, which presently seems to have been contained in, and confined to the river Han, on its nearer approach to Hankow. As it neared this place, it was spread over such a large district of level country, and was so much absorbed by the Han and Yang-tsze, that it made itself felt only in the slight addition made to the retiring annual inundation, which we have already described.

Had it come earlier, we should then have had fulfilled the prophecy of the natives, who predicted that this year would witness such an inundation as would put the last year's unusual rise far into the shade. As it is, the district has been happily preserved from any great calamity, and we may hope to be soon free from the inconveniences of our watery isolation.

The account of what has been witnessed at one point, is sure to be different from that of others describing the state of things in their own locality. We have purposely described the circumstances in general terms, and shall be gratified if we have ultimately succeeded in eliciting more exact and extensive information from more competent observers of such important phenomena.

Certain embankments, with floodgates, in the neighbourhood of Ngan-louh-fu, called Sih-tsz'-k'ow, (十字口) which protect the district of T'ien-men, having been broken by the unusual pressure upon them, added greatly to the mischief. It would seem that there is room for still another Yü, like the engineer monarch, founder of the Shia dynasty, who shall deliver this part of the country from its annual calamities.

Whether this outburst of subterranean waters, through some fault in the strata of the Han-tsung prefecture be the actual cause of this flood, we cannot certainly affirm."