

C H I [2] C H I

China, ⁶ gan to leave their caves and dwell in houses, and were taught to prepare clothes, &c. Tchine-fang, the first monarch of the eighth *ki*, taught his subjects to take off the hair from skins with rollers of wood, and cover themselves with the skins so prepared. He taught them also to make a kind of web of their hair, to serve as a covering to their heads against rain. They obeyed his orders with joy, and he called his subjects *people clothed with skins*. His reign lasted 350 years; that of one of his successors, also, named Yeou-tsao-chi, lasted more than 300; and his family continued for 12 or 18,000 years. But what is very surprising, all these thousands and millions of years had elapsed without mankind's having any knowledge of fire. This was not discovered till towards the close of this period, by one Souigine. After so useful a discovery, he taught the people to dress their victuals; whereas before they had devoured the flesh of animals quite raw, drunk their blood, and swallowed even their hair and feathers. He is also said to have been the inventor of fishing, letters, &c.

In the ninth period, we find the invention, or at least the origin of letters, attributed to one Tsang-hie, who received them from a divine tortoise that carried them on his shell, and delivered them into the hands of Tsang-hie. During this period also, music, money, carriages, merchandise, commerce, &c., were invented. There are various calculations of the length of these *ki* or periods. Some make the time from Puan-kn to Confucius, who flourished about 479 years before Christ, to contain 279,000 years; others, 2,276,000; some, 2,759,860 years; others, 3,276,000; and some no less than 96,961,740 years.

⁷ Fabulous history explained. These extravagant accounts are by some thought to contain obscure and imperfect hints concerning the cosmogony and creation of the world, &c. Puan-kn, the first emperor, they think, represents eternity preceding the duration of the world. The succeeding ones, Tiene-hoang, Ti-hoang, and Gine-hoang, they imagine, signify the creation of the heavens and earth, and the formation of man. The ten *ki* or ages, nine of which preceded Fo-hi, mean the ten generations preceding Noah. This may very possibly be the case; for about 500 years before Christ, some Jews travelled into China, who might have made the Mosaic writings known there.

What we have now related, contains the substance of that part of the Chinese history which is entirely fabulous. After the nine *ki* or "ages" already taken notice of, the tenth commenced with Fo-hi; and the history, though still very dark, obscure and fabulous, begins to grow somewhat more consistent and intelligible. Fo-hi was born in the province of Shensi. His mother walking upon the bank of a lake in that province, saw a very large print of a man's foot in the sand there; and, being surrounded with an iris or rainbow, became impregnated. The child was named Fo-hi; and, when he grew up, was by his countrymen elected king, on account of his superior merit, and styled *Tyen-tee*, that is, "the son of heaven." He invented the eight *qua*, or symbols, consisting of three lines each, which, differently combined, formed 64 characters that were made use of to express every thing. To give these the greater credit, he pretended that

he had seen them inscribed on the back of a dragon-horse (an animal shaped like a horse, with the wings and scales of a dragon), which arose from the bottom of a lake. Having gained great reputation among his countrymen by this prodigy, he is said to have created mandarins or officers, under the name of dragons. Hence we may assign a reason why the emperors of China always carry a dragon in their banners. He also instituted marriage, invented music, &c. Having established a prime minister, he divided the government of his dominions among four mandarins, and died after a reign of 115 years.

⁸ After Fo-hi followed a succession of emperors, of Miract whom nothing remarkable is recorded, except that in solstices the reign of Yau, the seventh after Fohi, the sun did not set for ten days, so that the Chinese were afraid of a general conflagration. This event the compilers of the Universal History take to be the same with that mentioned in the book of Joshua, when the sun and moon stood still for about the space of a day. Fo-hu this sol. and Fe they will have to be the same with Noah. They imagine, that after the deluge this patriarch remained some time with his descendants; but on their wicked combination to build the tower of Babel, he separated himself from them with as many as he could persuade to go along with him; and that, still travelling eastward, he at last entered the fertile country of China, and laid the foundation of that vast empire.—But, leaving these fabulous and conjectural times, we shall proceed to give some account of that part of the Chinese history which may be more certainly depended on.

As the Chinese, contrary to the practice of almost all nations, have never sought to conquer other countries, but rather to improve and content themselves with their own, their history for many ages furnishes nothing remarkable. The whole of their emperors, abstracting from those who are said to have reigned in the fabulous times, are comprehended in 22 dynasties, mentioned in the following table.

	Emperors.	Before Christ.
1. <i>Hya</i> , containing	17	2207
2. <i>Shang</i> , or <i>Ing</i> ,	28	1766
3. <i>Chew</i> ,	35	1122
4. <i>Tsin</i> ,	4	248
5. <i>Han</i> ,	25	206
After Christ.		
6. <i>Hew-han</i> ,	2	220
7. <i>Tsin</i> ,	15	465
8. <i>Song</i> ,	8	220
9. <i>Tsi</i> ,	5	479
10. <i>Lyang</i> ,	4	502
11. <i>Chin</i> ,	4	557
12. <i>Sui</i> ,	3	
13. <i>Twang</i> ,	20	618
14. <i>Hew-lyang</i> ,	2	907
15. <i>Hew-tang</i> ,	4	923
16. <i>Hew-tsin</i> ,	2	936
17. <i>Hew-han</i> ,	2	947
18. <i>Hew-chew</i> ,	3	951
19. <i>Song</i> ,	18	960
20. <i>Iiven</i> ,	9	1280
21. <i>Ming</i> ,	16	1368
22. <i>Tsing</i> ,		1645

This

¹³ China. Jin-tsung, successor to Ching-tsung, revived the courage of the Kitan; and, in 1035, war would have been renewed, had not the emperor condescended to as shameful a treaty as that concluded by his father. Two years after, the Tartars demanded restitution of ten cities in the province of Pecheli, which had been taken by Ko-ghey founder of the 18th dynasty: upon which Jin-tsung engaged to pay them an annual tribute of 200,000 taels of silver, and 300,000 pieces of silk, in lieu of these cities.

Kitan driven out by the eastern Tartars;

From this time the Kitan remained in peaceable possession of their Chinese dominions till the year 1117. Whey-tsung, at that time emperor, being able neither to bear their ravages, nor by himself to put a stop to them, resolved upon a remedy which at last proved worse than the disease. This was to call in the Nu-che, Nyu-che, or Eastern Tartars, to destroy the kingdom of the Kitan. From this he was dissuaded by the king of Korea, and most of his own ministers; but, disregarding their salutary advice, he joined his forces to those of the Nu-che. The Kitan were then everywhere defeated; and at last reduced to such extremity, that those who remained were forced to leave their country, and fly to the mountains of the west.

¹⁴ who assume the name of Kin, and invade China.

Thus the empire of the Kitan was totally destroyed, but nothing to the advantage of the Chinese; for the Tartar general, elated with his conquest, gave the name of Kin to his new dominion, assumed the title of emperor, and began to think of aggrandizing himself, and enlarging his empire. For this purpose, he immediately broke the treaties concluded with the Chinese emperor; and, invading the provinces of Pecheli and Shensi, made himself master of the greater part of them. Whey-tsung, finding himself in danger of losing his dominions, made several advantageous proposals to the Tartar; who, seeming to comply with them, invited him to come and settle matters by a personal conference. The Chinese monarch complied: but, on his return, the terms agreed on seemed intolerable to his ministers; so that they told him the treaty could not subsist, and that the most cruel war was preferable to such an ignominious peace. The Kin monarch, being informed of all that passed, had recourse to arms, and took several cities. Whey-tsung was weak enough to go in person to hold a second conference; but, on his arrival, was immediately seized by the Tartar. He was kept prisoner under a strong guard during the remaining part of his life; and ended his days in 1126, in the desert of Shamo, having nominated his eldest son Kin-tsung to succeed him.

¹⁵ They take the emperor prisoner.

Kin-tsung began his reign with putting to death six ministers of state, who had betrayed his father into the hands of the Kin Tartars. The barbarians in the meantime pursued their conquests without opposition. They crossed the Whang-ho, or Yellow river, which a handful of troops might have prevented; and marching directly towards the imperial city, took and plundered it. Then seizing the emperor and his consort, they carried them away captives: but many of the principal lords, and several of the ministers, preferring death to such an ignominious bondage, killed themselves. The Kin being informed by the empress

¹⁶ Imperial city and another emperor taken.

Meng that she had been divorced, they left her behind. Chin: This proved the means of saving the empire; for by her wisdom and prudence she got the crown placed on the head of Kau-tsung, ninth son of the emperor Whey-tsung by his divorced empress.

Kau-tsung fixed his court at Nanking the capital of Kyang-nan; but soon after was obliged to remove it to Kang-chew in Che-kyang. He made several efforts to recover some of his provinces from the Kin, but without effect. Ili-tsung the Kin monarch, in the mean time, endeavoured to gain the esteem of his Chinese subjects by paying a regard to their learning and learned men, and honouring the memory of Confucius. Some time after he advanced to Nanking, from whence Kau-tsung had retired, and took it: but, receiving advice that Yo-si, general of the Song, or southern Chinese, was advancing by long marches to the relief of that city, they set fire to the palace, and retired northward. However, Yo-si arrived time ¹⁷ Progres checked the Kin very much; and from this time the Kin never dared to cross the river Kyang. In a few years afterwards the Chinese emperor submitted to become tributary to the Kin, and concluded a peace with them upon very dishonourable terms. This submission, however, was of little avail: for, in 1163, the Tartars broke the peace, and, invading the southern province with a formidable army, took the city of Yang-chew. The king, having approached the river Kyang, near its mouth, where it is widest as well as most rapid, commanded his troops to cross it, threatening with his drawn sword to kill those who refused. On receiving such an unreasonable command, the whole army mutinied; and the king being killed in the beginning of the tumult, the army immediately re-

¹⁸ From this time to the year 1210, nothing remarkable occurs in the Chinese history; but this year, attacke Jenghiz-khan, chief of the western Tartars, Moguls, Jenghiz khan ai or Munguls, quarrelled with Yong-tsi emperor of the ¹⁹ the kin of Hya, disgusted of Hya

at being refused assistance against Jenghiz-khan, threatened him with an invasion on the west side. Yong-tsi prepared for his defence; but in 1211, receiving news that Jenghiz-khan was advancing southward with his whole army, he was seized with fear, and made proposals of peace, which were rejected. In 1212, the Great Mogul generals forced the great wall; or, according forced to some writers, had one of the gates treacherously Jenghiz opened to them, to the north of Shansi; and made incursions as far as Peking, the capital of the Kin empire. At the same time the province of Lyau-tong was almost totally reduced by several Kitan lords who had joined Jenghiz-khan; several strong places were taken, and an army of 300,000 Kin defeated by the Moguls. In autumn they laid siege to the city of Tay-tong-fu; where, although the governor Hujaku fled, yet Jenghiz-khan met with considerable resistance. Having lost a vast number of men, and being himself wounded by an arrow, he was obliged to raise the siege and retire into Tartary; after which the Kin retook several cities. The next year, however, Jenghiz-khan re-entered China; retook the cities which the Kin had reduced the year before; and overthrew their

China. the other hand, the Kin generals advanced with 150,000 men to relieve the city; but being obliged to divide their forces, in order to avoid in part the great road, which Toley had obstructed with trees, they were attacked by the prince at a disadvantage, and, after a faint resistance, defeated with great slaughter, and the loss of both their generals, one killed and the other taken. The emperor now ordered the army at Tong-quan and other fortified places to march to the relief of Kay-song-fu. They assembled accordingly, to the number of 110,000 foot and 15,000 horse; and were followed by vast numbers of people, who expected by their means to be protected from the enemy. But many of these troops having deserted, and the rest being enfeebled by the fatigues of their march, they dispersed on the approach of their pursuers, who killed all they found in the highways. After this the Moguls took Tong-quan and some other considerable posts; but were obliged to raise the sieges of Quey-te-fu and Loyang by the bravery of the governors. Kyang-shin, governor of Loyang, had only 3 or 4000 soldiers under him, while his enemies were 30,000 strong. He placed his worst soldiers on the walls, putting himself at the head of 400 brave men; whom he ordered to go naked, and whom he led to all dangerous attacks. He invented engines to cast large stones, which required but few hands to play them, and aimed so true as to hit at 100 paces distance. When their arrows failed, he cut those shot by the enemy into four pieces; pointed them with pieces of brass coin; and discharged them from wooden tubes with as much force as bullets are from a musket. Thus he harassed the Moguls for three months so grievously, that they were obliged, notwithstanding their numbers, to abandon the enterprise.

²⁷
Bravery of
the besieged.

Oktay, at last, notwithstanding his successes, resolved to return to Tartary; and offered the Kin emperor peace, provided he became tributary, and delivered up to him 27 families which he named. These offers were very agreeable to the emperor; but Suputay, taking no notice of the treaty, pushed on the siege of the capital with more vigour than ever. By the help of the Chinese slaves in his army, the Mogul general soon filled the ditch; but all his efforts seemed only to inspire the besieged with new vigour. The Moguls at that time made use of artillery, but were unable to make the least impression upon the city walls. They raised walls round those they besieged, which they fortified with ditches, towers, and battlements. They proceeded also to sap the walls of the city; but were very much annoyed by the artillery of the besieged, especially by their bombs, which sinking into the galleries, and bursting under ground, made great havoc among the miners. For 16 days and nights the attacks continued without intermission; during which time an incredible number of men perished on both sides; at length, Suputay, finding that he could not

²⁸
Peace con-
cluded;
and bro-
ken.

In a short time two unlucky accidents occasioned a renewal of the war; which now put an end to the

empire of the Kin. Gan-yong, a young Mogul lord, ^{Chi} having assumed the government of some cities in Kyang-nan, and killed the officer sent to take possession of them, declared for the Kin. The emperor unwarily took Gan-yong into his service, and gave him the title of prince. Upon this Oktay sent an envoy, attended by 30 other persons, to inquire into the affair; but the Kin officers killed them all, without being punished by the emperor. Suputay, having informed his master of all these proceedings, was ordered to continue the war in Honan. Shew-fu now commanded his officers to unite their troops for the defence of the capital; but before his orders could be obeyed, they were attacked and defeated, one after another, by the Moguls. This obliged him to raise soldiers from among the peasants, for whose subsistence the people were taxed $\frac{1}{5}$ ths of the rice they possessed. The city began now to be distressed for want of provisions; and as it was but in a bad posture of defence, the emperor marched with an army against the Moguls. ³⁰

His expedition proved unfortunate; for, sending part ^{Capita} of his army to besiege a city called *Wly-cheu*, it was again ^{si:ged} totally cut in pieces, and Suputay a second time sat ^{down} before the capital.

On hearing this bad news, the emperor repassed the ^{and ta} Whang-bo, and retired to Quey-te-fu. Here he had not been long before the capital was delivered up by treachery, and Suputay put all the males of the imperial race to death; but, by the express command of Oktay, spared the inhabitants, who are said to have amounted to 1,400,000 families. After this disaster, the unhappy monarch left his troops at Quey-te-fu, and retired to Juning-fu, a city in the southern part ³¹ of Honan, attended only by 400 persons. Here the ^{Siege o} distance of the Moguls made him think of living at Juning-ease; but while he flattered himself with these vain hopes, the enemy's army arrived before the city and invested it. The garrison were terrified at their approach; but were encouraged by the emperor, and his brave general Hu-sye-hu, to hold out to the last. As there was not in the city a sufficient number of men, the women, dressed in men's clothes, were employed to carry wood, stones, and other necessary materials to the walls. All their efforts, however, were ineffectual. They were reduced to such extremities, that for three months they fed on human flesh; killing the old and feeble, as well as many prisoners, for food. This being known to the Moguls, they made a general assault in January 1234. The attack continued from morning till night; but at last the assailants were repulsed. In this action, however, the Kin lost all their best officers; upon which the emperor resigned the crown to Cheng-lin a prince of the blood. Next morning, while the ceremony of investing the new emperor was performing, the enemy mounted the south walls, which were defended only by 200 men; and the south gate being at the same time abandoned, the whole army broke in. They were opposed, however, by Hu-sye-hu; who, with 1000 soldiers, continued to ³² fight with amazing intrepidity. In the mean time ^{Unhapp} Shew-fu, seeing every thing irreparably lost, lodged safe ¹ the seal of the empire in a house; and then causing emperor sheaves of straw to be set round it, ordered it to be set on fire as soon as he was dead. After giving this order he hanged himself, and his commands were ex- cuted

China.

Ywen was ordered to come to its relief; but, on his arrival, was put to the torture and strangled; of which the Tartars were no sooner informed, than they raised the siege, and returned to their own country. In 1636, the rebels above mentioned composed four great armies, commanded by as many generals; which, however, were soon reduced to two, commanded by Li and Chang. These agreed to divide the empire between them; Chang taking the western provinces, and Li the eastern ones. The latter seized on part of Shen-si, and then on Honan, whose capital, named *Kay-fong-fu*, he laid siege to, but was repulsed with loss. He renewed it six months after, but without success; the besieged choosing rather to feed on human flesh than surrender. The imperial forces coming soon after to its assistance, the general made no doubt of being able to destroy the rebels at once, by breaking down the banks of the Yellow river; but unfortunately the rebels escaped to the mountains, while the city was quite overflowed, and 300,000 of the inhabitants perished.

After this disaster, Li marched into the provinces of Shen-si and Honan; where he put to death all the mandarins, exacted great sums from the officers in place, and showed no favour to any but the populace, whom he freed from all taxes: by this means he drew so many to his interest, that he thought himself strong enough to assume the title of emperor. He next advanced towards the capital, which, though well garrisoned, was divided into factions. Li had taken care to introduce beforehand a number of his men in disguise: and by these the gates were opened to him the third day after his arrival. He entered the city in triumph at the head of 300,000 men, whilst the emperor kept himself shut up in his palace, busied only with his superstitions. It was not long, however, before he found himself betrayed; and, under the greatest consternation, made an effort to escape out of the palace, attended by about 600 of his guards. He was still more surprised to see himself treacherously abandoned by them, and deprived of all hopes of escaping the insults of his subjects. Upon this, preferring death to the disgrace of falling alive into their hands, he immediately retired with his empress, whom he tenderly loved, and the princess her daughter, into a private part of the garden. His grief was so great that he was not able to utter a word; but she soon understood his meaning, and, after a few silent embraces, hanged herself on a tree in a silken string. Her husband staid only to write these words on the border of his vest: "I have been basely deserted by my subjects; do what you will with me, but spare my people." He then cut off the young princess's head with one stroke of his scymitar, and hanged himself on another tree, in the 17th year of his reign, and 36th of his age. His prime minister, queens, and eunuchs, followed his example; and thus ended the Chinese monarchy, to give place to that of the Tartars, which hath continued ever since.

It was some time before the body of the unfortunate monarch was found. At last it was brought before the rebel Li, and by him used with the utmost indignity; after which he caused two of Whay-tsong's sons, and all his ministers, to be beheaded; but his eldest son happily escaped by flight. The whole em-

pire submitted peaceably to the usurper, except Prince U-san-ghey, who commanded the imperial forces in the province of Lyau-tong. This brave prince, finding himself unable to cope with the usurper, invited the Tartars to his assistance; and Tsong-te their king immediately joined him with an army of 80,000 men. Upon this the usurper marched directly to Peking; but not thinking himself safe there, plundered and burnt the palace, and then fled with the immense treasure he had got. What became of him afterwards we are not told; but the young Tartar monarch was immediately declared emperor of China, his father Tsong-te having died almost as soon as he set his foot on that empire.

The new emperor, named *Shun-chi*, or *Xun-chi*, began his reign with rewarding U-san-ghey, by conferring upon him the title of king; and assigned him the city of Si-gnan-fu, capital of Shen-si, for his residence. This, however, did not hinder U-san-ghey from repenting of his error in calling in the Tartars, or, as he himself used to phrase it, "in sending for lions to drive away dogs." In 1674, he formed a very strong alliance against them, and had probably prevailed if his allies had been faithful; but they treacherously deserted him one after another: which so affected him, that he died soon after. In 1681 Hong-wha, son to U-san-ghey, who continued his efforts against the Tartars, was reduced to such straits that he put an end to his own life.

During this time, some resistance had been made to the Tartars in many of the provinces. Two princes of Chinese extraction had at different times been proclaimed emperors; but both of them were overcome and put to death. In 1682, the whole 15 provinces ^{Empi} were so effectually subdued, that the emperor Kang-hi, tally successor to Shun-chi, determined to visit his native dominions of Tartary. He was accompanied by an army of 70,000 men, and continued for some months taking the diversion of hunting. For several years he repeated his visits annually; and in his journeys took Father Verbiest along with him; by which means we have a better description of these countries than could have been otherwise obtained. This prince was a great ^{Chris} encourager of learning and of the Christian religion; ^{ty fir} and in favour of the latter he published a decree, dated ^{coura} in 1692. But in 1716, he revived some obsolete laws ^{and t} against the Christians; nor could the Jesuits with all ^{Perse} their art preserve the footing they had got in China. The causes of this alteration in his resolution are, by the missionaries, said to have been the slanders of the mandarins; but, from the known character of the Jesuits, it will be readily believed, that there was something more at bottom. This emperor died in 1722, and was succeeded by his son Yon-ching; who not only gave no encouragement to the missionaries, but persecuted all Christians of whatever denomination, not excepting even those of that imperial race. At the beginning of his reign he banished all the Jesuits into the city of Canton, and in 1732 they were banished from thence into Ma-kau, a little island inhabited by the Portuguese, but subject to China. He died in 1736: but though the Jesuits entertained great hopes from his successor, we have not heard that they have yet met with any success.

Thus we have given an account of the most memorable

⁵⁰
Unhappy fate of the emperor and his family.

China—mon pole. I was always surprised to find this river so narrow and shallow in that place: but I never thought of inquiring into the cause of it, until the loss of a bark belonging to a Christian family afforded me an opportunity. In that place where the river diminishes almost of a sudden, it flows with great impetuosity; and where it resumes its former breadth it is equally rapid. At the sixth moon, when the water was high and the wind strong, the bark I have mentioned arriving above Che-pai, was driven on a sand-bank; for between these two places the river is full of moveable sands, which are continually shifting their situation. The master of the boat dropped his anchor until the wind should abate, and permit him to continue his voyage; but a violent vortex of moveable sand, which was cast up from the bottom of the river, laid the bark on its side; a second vortex succeeded; then a third; and afterwards a fourth, which shattered the bark to pieces. When I arrived at the place where this bark had been lost, the weather was mild and serene; I perceived eddies in the current everywhere around, which absorbed, and carried to the bottom of the river, whatever floated on the surface; and I observed, at the same time, that the sand was thrown violently up with a vertical motion. Above these eddies the water was rapid, but without any fall; and in the place below, where the river resumes its usual course, no eddies are to be seen, but the sand is thrown up in the same violent manner; and in some places there are water-falls and a kind of small islands scattered at some distance from one another. These islands which appear above the surface of the water, are not solid earth, but consist of branches of trees, roots, and herbs collected together. I was told that these boughs rose up from the water, and that no one knew the place from whence they came. I was informed that these masses, which were 40 or 50 feet in extent on that side on which we passed, were immovable and fixed in the bottom of the river; that it was dangerous to approach them, because the water formed whirlpools everywhere around them; that, however, when the river was very low, the fishermen sometimes ventured to collect the bushes that floated on its surface, and which they used for fuel. I am of opinion, that, at the place of the river which is above Che-pai, the water falls into deep pits, from whence it forces up the sand with that vertical motion; and that it flows under-ground to the other place, eight or nine leagues below, where it carries with it all the boughs, weeds, and roots, which it washes down in its course, and thus forms those islands which appear above its surface. We know there are some rivers that lose themselves entirely, or in part, in the bowels of the earth, and which afterwards arise in some other place; but I believe there never was one known to lose part of its water below its own channel, and again to recover it at the distance of some leagues."

⁵⁷ Why China is subject to famines, notwithstanding its fertility. It has already been said, that China is, in general, a fertile country; and indeed all travellers agree in this respect, and make encomiums on the extent and beauty of its plains. So careful are the husbandmen of this empire to lose none of their ground, that neither inclosure, hedge, nor ditch, nay, scarce a single tree, are ever to be met with. In several places the land yields two crops a-year; and even in the interval be-

tween the harvests the people sow several kinds of Chi pulse and small grain. The plains of the northern provinces yield wheat; those of the southern, rice, because the country is low and covered with water. Notwithstanding all this fertility, however, the inhabitants are much more frequently afflicted with famine than those of the European nations, though the countries of Europe produce much less than China. For this two causes are assigned. 1. The destruction of the rising crops by drought, hail, inundations, locusts, &c. in which case China cannot like the European countries be supplied by importation. This is evident by considering how it is situated with regard to other nations. On the north are the Mogul Tartars, a lazy and indolent race, who subsist principally on the flesh of their flocks; sowing only a little millet for their own use. The province of Leatong, which lies to the north-east, is indeed extremely fertile, but too far distant from the capital and centre of the empire to supply it with provisions; and besides, all carriage is impracticable but in the winter, when great quantities of game and fish, preserved in ice, are sent thither. No corn is brought from Corea to China; and though the Japan islands are only three or four days sailing from the Chinese provinces of Kiang-nan and Che-kyang, yet no attempt was ever made to obtain provisions from thence; whether it be that the Japanese have nothing to spare, or on account of the insults offered by those islanders to foreign merchants. Formosa lies opposite to the province of Fo-kien; but so far is that island from being able to supply any thing, that in a time of scarcity it requires a supply from China itself. The province of Canton is also bounded by the sea, and has nothing on the south but islands and remote countries. One year, when rice was exceedingly scarce there, the emperor sent for F. Parrain, a Jesuit missionary, and asked him if the city of Macao could not furnish Canton with rice until the supply he had ordered from other provinces should arrive: but was informed that Macao had neither rice, corn, fruit, herbs, nor flocks, and that it generally got from China what was necessary for its subsistence.—The only method, therefore, the Chinese can take to guard against famines arising from these causes, is to erect granaries and public magazines in every province and most of the principal cities of the empire. This has at all times been a principal object of care to the public ministers; but though this mode of relief still takes place in theory, so many ceremonies are to be gone through before any supply can be drawn from those public repositories, that it seldom arrives seasonably at the places where it is wanted: and thus numbers of unhappy wretches perish for want. 2. Another cause of the scarcity of grain in this empire, is the prodigious consumption of it in the composition of wines, and a spirituous liquor called *rack*. But though government is well apprised that this is one of the principal sources of famine throughout the empire, it never employed means sufficient to prevent it. Proclamations indeed have frequently been issued, prohibiting the distillation of *rack*; and the appointed officers will visit the still-houses and destroy the furnaces, if nothing is given them; but on slipping some money into their hands, they shut their eyes, and go somewhere

China. a court; but they have neither influence nor power, and their authority is lower than that of the meanest mandarin.

⁶¹ Mandarins of different classes. The mandarins are of two classes, viz. those of letters, and the inferior sort styled mandarins of arms. The latter by no means enjoy the same consideration with the former sort; indeed in China the literati are highly honoured, and to their influence M. Grosier supposes that we may in a great measure ascribe the mildness and equity of the government; though he thinks that the balance may incline rather too much in their favour. Several degrees, answering to those of bachelor, licentiate, and doctor, must be passed through before one can attain to the dignity of a mandarin of letters; though sometimes, by the favour of the emperor, it is conferred on those who have attained only the two first degrees: but even the persons who have gone through all the three, enjoy at first only the government of a city of the second or third class. When several vacancies happen in the government of cities, the emperor invites to court a corresponding number of the literati, whose names are written down in a list. The names of the vacant governments are then put into a box, raised so high that the candidates are able only to reach it with their hands; after which they draw in their turns, and each is appointed governor of the city whose name he has drawn.

There are eight orders of these mandarins in China.
 1. The *calao*, from whom are chosen the ministers of state, the presidents of the supreme courts, and all the superior officers among the militia. The chief of this order presides also in the emperor's council, and enjoys a great share of his confidence. 2. The *te-hiaose*, or man of acknowledged ability, is a title bestowed upon every mandarin of the second rank; and from these are selected the viceroys and presidents of the supreme council in the different provinces. 3. The *tchong-tchueo*, or school of mandarins, act as secretaries to the emperor. 4. *Y-tchuen-tao*. These keep in repair the harbours, royal lodging houses, and barks which belong to the emperor, unless particularly engaged in some other office by his order. 5. The *ting-pi-tao* have the inspection of the troops. 6. The *tun-tien-hao* have the care of the highways. 7. The *ho-tao* superintend the rivers. 8. The *hai-tao* inspect the sea-coasts.

Thus the whole administration of the Chinese empire is intrusted to the mandarins of letters; and the homage paid by the common people to every mandarin in office almost equals that paid to the emperor himself. This indeed flows from the nature of their government. In China it is a received opinion that the emperor is the father of the whole empire; that the governor of a province is the father of that province; and that the mandarin who is governor of a city is also the father of that city. This idea is productive of the highest respect and submission, which is not at all lessened by their great number; for though the mandarins of letters amount to more than 14,000, the same respect is paid to every one of them.

The mandarins of arms are never indulged with any share in the government of the state; however, to attain the dignity, it is also necessary to pass through the degrees of bachelor, licentiate, and doctor of arms.

The accomplishments necessary for a mandarin of arms are, strength of body, with agility and readiness in performing the various military exercises, and comprehending the orders requisite for the profession of arms; an examination on these subjects must be undergone before the candidate can attain the wished-for dignity.

⁶² The mandarins of arms have tribunals, the members of which are selected from among their chiefs; and among these they reckon princes, counts, and dukes; for all these dignities, or something equivalent to them, are met with in China. The principal of these tribunals is held at Peking, and consists of five classes:
 1. The mandarins of the rear-guard, called *hou-fou*.
 2. Of the left wing, or *tsa-fou*. 3. Of the right wing, or *yeou-fou*. 4. Of the advanced main-guard, or *te-hong-fou*. 5. Of the advanced guard, or *tsien-fou*. These five tribunals are subordinate to one named *tong-tching-fou*; the president of which is one of the great lords of the empire, whose authority extends over all the military men of the empire. By his high dignity he could render himself formidable even to the emperor; but to prevent this inconvenience, he has for his assessor a mandarin of letters, who enjoys the title and exercises the function of superintendent of arms. He must also take the advice of two inspectors who are named by the emperor; and when these four have agreed upon any measure, their resolution must still be submitted to the revision of a higher court named *ping-pou*, which is entirely of a civil nature. The chief of these mandarins is a general of course, whose powers are equivalent to those of our commanders in chief; and below him are other mandarins who act as subordinate officers.

These two classes of mandarins compose what is called the nobility of China: but as we have already hinted, their office is not hereditary; the emperor alone continues or confers it. They have the privilege of remonstrating to the emperor, either as individuals or in a body, upon any part of his conduct which appears contrary to the interest of the empire. These remonstrances are seldom ill received, though the sovereign complies with them only when he himself thinks proper. The number of literary mandarins in China is computed at upwards of 14,000; and those of arms at 18,000; the former, however, are considered as the principal body in the empire; and this preference is thought to damp the military ardour of the nation in general, and to be one cause of that weakness in war for which the Chinese are remarkable.

⁶³ The armies of this empire are proportioned to its vast extent and population; being computed in time of peace at more than 700,000. Their pay amounts to about two-pence halfpenny and a measure of rice per day, though some of them have double pay, and the pay of a horseman is double that of a foot soldier; the emperor furnishes a horse, and the horseman receives two measures of small beans for his daily subsistence; the arrears of the army being punctually paid up every three months.

The arms of a horseman are, a helmet, cuirass, lance, and sabre; those of a foot soldier are a pike and sabre; some have fusées, and others bows and arrows. All these are carefully inspected at every review; and if any of them are found in the least rusted, or otherwise in

China.

This second tribunal, which may be called a kind of civil inquisition, is subdivided into four others; the first entrusted with the care of selecting those who, on account of their learning or other good properties, are capable of filling the offices of government; the second appointed to take care of the conduct of the mandarins; the third affixing the seals to the different public acts, giving the seals to mandarins, and examining those of the different dispatches; while the fourth inquires into the merit of the grandees of the empire, not excepting the princes of the imperial blood themselves. The principal sovereign court to which these four last are subordinate is called *Li-pou*.

2. *Hou-pou*, or the grand treasurer, superintends all the finances of the state; is the guardian and protector of the treasures and dominions of the emperor, keeping an account of his revenues, &c. superintending the management and coining of money, the public magazines, customhouses; and, lastly, keeping an exact register of all the families in the empire. To assist this court, 14 others are appointed throughout the different provinces of the empire.

3. *Li-pou*, or the court of ceremonies. "It is an undoubted fact (says M. Grosier), that ceremonies form, in part, the base of the Chinese government. This tribunal therefore takes care to support them, and enforce their observance; it inspects also the arts and sciences. It is consulted by the emperor when he designs to confer particular honours; takes care of the annual sacrifices offered up by him, and even regulates the entertainments which he gives either to strangers or to his own subjects. It also receives and entertains foreign ambassadors, and preserves tranquillity among the different religious sects in the empire. It is assisted by four inferior tribunals.

4. *Ping-Pou*, or the tribunal of arms, comprehends in its jurisdiction the whole militia of the empire; inspecting also the fortresses, magazines, arsenals, and store-houses of every kind, as well as the manufactories of arms both offensive and defensive; examining and appointing officers of every rank. It is composed entirely of mandarins of letters; and the four tribunals depending upon it consist also of literati."

5. The *hong-pou*, is a criminal bench for the whole empire, and is assisted by 14 subordinate tribunals.

6. The *cong-pou*, or tribunal of public works, surveys and keeps in repair the emperor's palaces, as well as those of the princes and viceroys, and the buildings where the tribunals are held, with the temples, tombs of the sovereigns, and all public monuments. It has besides the superintendance of the streets, public highways, bridges, lakes, rivers, and every thing relating either to internal or foreign navigation. Four inferior tribunals assist in the discharge of these duties; the first drawing the plans of public works; the second directing the work-shops in the different cities of the empire; the third surveying the causeways, roads, bridges, canals, &c.; and the fourth taking care of the emperor's palaces, gardens, and orchards, and receiving their produce.

All the tribunals are composed, one half of Chinese, and the other of Tartars; and one of the presidents of each superior tribunal is always a Tartar born. None of the courts above described, however,

has absolute authority even in its own jurisdiction; Chi nor can its decisions be carried into execution without the concurrence of another tribunal, and sometimes of several others. The fourth tribunal, for instance, has indeed under its jurisdiction the whole troops of the empire; but the payment of them is entrusted with the second; while the sixth has the care of the arms, tents, chariots, barks, and stores necessary for military operations; so that nothing relative to these can be put in execution without the concurrence of all the three tribunals.

To prevent any unlawful combination among the Censo tribunals, each has its censor appointed. This is an officer whose duty is merely to watch over the proceedings of the court, without deciding upon any thing himself. He assists therefore at all assemblies, revises all their acts, and without acquainting the court in the least with either his sentiments or intentions, immediately informs the emperor of what he judges to be amiss. He likewise gives information of the behaviour of the mandarins, either in the public administration of affairs, or in their private conduct; nay, sometimes he will not scruple to reprimand the emperor for what he supposes to be erroneous in his conduct.

These censors are never removed from their places but in order to be promoted; and thus, holding their offices for life, they have the greater courage to speak out when they observe any impropriety or abuse. Their accusation is sufficient to set on foot an inquiry, which generally leads to a proof; in which case the accused is discharged from his office, and never held in any estimation afterwards. The complaints of the censors, however, are referred to the very tribunal against whose members they complain; though, being afraid of an accusation themselves, they very seldom pass sentence against the accusers.

Besides all this, the censors also form a tribunal of their own, named *tou-tche-yuen*. Its members have a right of remonstrating with the emperor, whenever his own interest or that of the public renders it necessary. They inspect all lawyers and military men in public employments. "In short (says M. Grosier), they are, morally speaking, placed between the prince and the mandarins; between the mandarins and the people; between the people and families; between families and individuals; and they generally unite to the importance of their office incorruptible probity and invincible courage. The sovereign may, if he proceeds to rigour, take away their lives; but many of them have patiently suffered death, rather than betray the cause of truth or wink at abuses. It is not sufficient therefore to have got rid of one, they must all be treated in the same manner; the last that might be spared would tread in the same steps with no less resolution than those who went before him. In the annals of no nation do we find an example of such a tribunal, yet it appears to be necessary in all without exception. We must not, however, imagine, that the privileges of a censor give him a right to forget his duty to his sovereign, or to communicate to the public those remarks which he takes the liberty of making to him: were he only to give the least hint of them to his colleagues, he would be punished with death; and he would share the same fate did he, in any of his representations,

China. succeed to the dignity or titles of their father, though they may to his estate. The emperor alone can confer honours; and even then they must be resigned when the person attains the age of 70; though this resignation is considered as an advice rather than a law. The will of a father cannot be set aside in China on account of any informality; nor can any mother in this empire make a will.

Though the Chinese laws authorize slavery, yet the power of the master extends only to those matters which concern his own service; and he would be punished with death for taking advantage of his power to debauch the wife of his slave.

By the laws of China husbandmen are exempt from the payment of taxes after they have begun to till the earth to the beginning of harvest.

73
Criminal code.

It appears, from recent information respecting many interesting particulars relating to China, that the utmost attention seems to have been paid to the different degrees of enormity attached to those actions of men which are denominated criminal. The code of laws is pronounced the reverse of sanguinary, and it is affirmed by competent judges, that if the practice in all respects coincided with the theory, few nations could boast of a milder or more effectual administration of justice. But while they do not consider the crime of pilfering a few small pieces of money as of equal enormity with the shedding of human blood, yet they pay too little attention to the three different circumstances under which that action may exist; either as accidental, unintentional as to the extent of taking away life, or maliciously premeditated. Even foreigners who have the misfortune to kill a Chinaman, however casually it may be done, have been punished in the very same manner as a traitor or deliberate assassin. As foreigners intending to reside in China may be at a loss to determine how, when, and by what various means their lives may be endangered, the following abstract of the criminal code of that country may perhaps be beneficial to some of our readers.

1. A man who kills another on the supposition of theft, shall be strangled, according to the law of homicide committed in an affray.

2. A man who fires at another with a musket, and kills him, shall be beheaded, as in cases of wilful murder. If the sufferer be wounded, but not mortally, the offender shall be sent into exile.

3. A man who puts to death a criminal who had been apprehended, and made no resistance, shall be strangled, according to the law against homicide committed in an affray.

4. A man who falsely accuses an innocent person of theft (in cases of greatest criminality) is guilty of a capital offence; in all other cases the offenders, whether principals or accessories, shall be sent into exile.

5. A man who wounds another unintentionally, shall be tried according to the law respecting blows given in an affray, and the punishment rendered more or less severe, according to the degree of injury sustained.

6. A man, who, intoxicated with liquor, commits outrages against the laws, shall be exiled to a desert country, there to remain in a state of servitude.

For this abstract we are indebted to the humane in-

terference of the supercargoes of the East India Company, on account of the disagreeable disputes which frequently took place with the Chinese government, owing to accidents of the most trivial nature, which the people sometimes met with from the British in the port of Canton.

The blood of a traitor is supposed to be contaminated in this country to the 10th generation, although the law in general is conceived to be satisfied with implicating the nearest male relatives in the guilt of the actual perpetrator of the crime, but with commutation of punishment from death to exile. It appears to us, that nothing can be conceived more tyrannical than a law which pretends to inflict punishment on an innocent person, since no man can be a traitor, merely from the circumstance of his being the relation of one, and the absurdity of supposing that a non-existence is capable of committing a crime, must be obvious to every man. The fifth law in the forementioned extract is peculiarly cruel and unjust, since it subjects a man to different degrees of punishment, according to the different effects which those actions may produce. It is with a degree of national pride that we turn from this cruel, absurd specimen of Chinese legislation, this strange judicial thermometer, if we may be allowed the expression, to the nice discriminations which are made by the laws of our own country respecting the shedding of blood, the gradations of guilt attending which we have already mentioned, and which are distinguished by the appropriate names of *manslaughter*, *culpable homicide*, and *wilful murder*.

The denunciations of Moses, it may be said, have some resemblance to this Gothic code of the Chinese, especially when he declares that the deity would visit the iniquities of the fathers upon the children to the third and fourth generation. It is not our province, in this account of China, to write an apology for Moses in this particular instance, although it must be granted that he had a most obstinate and refractory race of beings to govern, and to preserve a becoming degree of order and subordination among them. He might therefore have nothing more in view than political expedience; an opinion which we are the more encouraged to entertain, when we find the prophet Ezekiel reprobating the idea of making the innocent suffer for the guilty, in the following beautiful passage. "What mean ye that ye use this proverb concerning the land of Israel, saying, the fathers have eaten sour grapes, and the children's teeth are set on edge? As I live, saith the Lord, ye shall not have occasion any more to use this proverb in Israel. Behold all souls are mine; as the soul of the father, so also the soul of the son, is mine. The soul that sinneth, it shall die. The son shall not bear the iniquity of the father, neither shall the father bear the iniquity of the son: the righteousness of the righteous shall be upon him, and the wickedness of the wicked shall be upon him."

In criminal matters every person accused must be examined before five or six tribunals; and whose inquiries are directed not only against him, but against his accuser, and the witnesses that appear in the cause. He is, however, obliged to remain in prison during the process: "but (says M. Grosier) the Chinese prisons are not horrible dungeons like those of so many other nations; they are spacious, and have even a degree

China. making small gashes in the body, and then tearing off the skin like thongs. It is never applied but for some great crime, such as treason, or where the criminal's guilt has been clearly proved, and it is necessary to make him discover his accomplices.

⁷⁹ M. Gro- Notwithstanding these dreadful punishments, M. sier's gene- Grosier is at great pains to prove that the laws of the ral view of Chinese, with regard to criminal matters, are extreme- lawa. ly mild. "One law (says he) will no doubt appear exceedingly severe and rigorous; it inflicts the punishment of death on those who use pearls. Those who

read the history of China will be apt to fall into certain mistakes respecting the penal laws of that nation. Some of its sovereigns have indulged themselves in gratifying sanguinary caprices which were not authorized by the laws, and which have often been confounded with them; but these princes are even yet ranked among the number of tyrants, and their names are still abhorred and detested throughout the whole empire. The Chinese, in their criminal procedure, have a great advantage over all other nations: it is almost impossible that an innocent man should ever become a victim to a false accusation: in such cases the accuser and witness are exposed to too much danger. The slowness of the process, and the numberless revisions it undergoes, are another safeguard for the accused. In short, no sentence of death is ever carried into execution until it has been approved and confirmed by the emperor. A fair copy of the whole process is laid before him; a number of other copies are also made out, both in the Chinese and Tartar languages, which the emperor submits to the examination of a like number of doctors, either Tartars or Chinese. When the crime is of great enormity, and clearly proved, the emperor writes with his own hand at the bottom of the sentence, "When you receive this order, let it be executed without delay." In cases where the crime, though punishable by death according to law, is ranked only in the ordinary class, the emperor writes at the bottom of the sentence, "Let the criminal be detained in prison, and executed in autumn;" that being the season in which they are generally executed, and all on the same day.

⁸⁰ Cases in which crimes may be pardoned. The emperor of China never signs an order for the execution of a criminal till he has prepared himself by fasting. Like other monarchs he has the power of giving pardons; but in this respect is much more limited than any other. The only cases in which the Chinese monarch can remit the punishment inflicted by law are, 1. To the son of a widow who has not married again; 2. To the heir of an ancient family; 3. The descendants of great men or citizens who have deserved well of their country; and, 4. lastly, The sons or grandsons of a mandarin, who has become illustrious, and distinguished himself by faithfully discharging the duties of his office. Neither a child, nor a man of very advanced age, can be cited before a tribunal. The son of a very aged father and mother is pardoned, if private property or the public peace be not hurt by giving him a pardon; and if the sons of such a father and mother be all guilty, or accomplices in the same crime, the youngest is pardoned in order to comfort his parents.

In China the accused are always treated with ten-

derness and lenity, being accounted innocent until their guilt be clearly proved; and even then, liberty excepted, they are scarce allowed to want for any thing. A jailor is punished who behaves rigorously towards his prisoners; and the judges must likewise answer at their peril for any additions to the severity of the law; deposition being the slightest punishment inflicted upon them.

Substitution is sometimes allowed by the laws of China; so that the near relation of a guilty person may put himself in the criminal's place, provided however, that the chastisement be slight, and the accused his ancient friend. The sons, grandsons, wife, and brothers of a banished Chinese, are allowed to follow him into exile; and the relations of all persons are permitted to visit them in prisons, and to give them every assistance in their power; to do which good offices they are even encouraged, instead of being prevented.

Every city in China is divided into different quarters, each of which is subjected to the inspection of a certain officer, who is answerable for whatever passes in the places under his jurisdiction. Fathers of families, as we have already observed, are answerable for the conduct of their children and domestics. Neighbours are even obliged to answer for one another, and are bound to give every help and assistance in cases of robbery, fire, or any accident, especially in the night-time. All the cities are furnished with gates, which are barricaded on the commencement of night. Centinels are also posted at certain distances throughout the streets, who stop all who walk in the night, and a number of horsemen go round the ramparts for the same purpose; so that it is almost impossible to elude their vigilance by favour of the darkness. A strict watch is also kept during the day-time; and all those who give any suspicion by their looks, accent, or behaviour, are immediately carried before a mandarin, and sometimes even detained until the pleasure of the governor be known.

Private quarrels do not often happen in China, and it is rare that they are attended with a fatal issue. The champions sometimes decide the quarrel with their fists, but most frequently refer the case to a mandarin, who very often orders them both a sound drubbing. None but military people are permitted to wear arms in public; and this privilege is extended even to them only during the time of war, or when they accompany a mandarin, mount guard, or attend a review. Prostitutes are not allowed to remain within the walls of a city, or to keep a house of their own even in the suburbs. They may, however, lodge in the house of another; but that other is accountable for every disturbance which may happen on their account.

In all the Chinese cities, and even in some of their ordinary towns, there is an office where money may be borrowed upon pledges at the common rate of the country; which, however, is no less than 30 per cent. Every pledge is marked with a number when left at the office, and must be produced when demanded; but it becomes the property of the office if left there a single day longer than the term agreed upon for the payment of the money. The whole transaction remains an inviolable secret; not even the name of

China. and for want of small coin, a Chinese always carries about him his scales, weights, and a pair of scissars to cut the metal. This operation is performed by putting the silver between the scissars, and then knocking them against a stone till the pieces drop off. In giving of change, however, people have no right to value silver by the numerical value of copper, this being entirely regulated by the intrinsic value of the metals. Thus, an ounce of silver will sometimes be worth 1000 copper pieces, and sometimes only 800; and thus the copper money of China may frequently be sold for more than it would pass for in commerce. The emperor would lose much by this recoinage, were he not the sole proprietor of all the copper mines in China. It is, however, expressly forbidden to employ copper coin in any manufacture where it might be employed as plain copper, and it is also forbidden to be sold for the purpose of melting: but if the price of the metal has not fallen, the infraction of this law is not very severely punished. On the other hand, if the value of unwrought copper exceeds that of the coin, a quantity of the latter is issued out to restore the equilibrium.

To keep up a constant circulation of all the coin in the empire, the Chinese government are attentive to preserve an equilibrium between the proportional value of the copper and silver; that is, to regulate the intrinsic value of each in such a manner that the possessor of silver may not be afraid to exchange it for copper, nor the possessor of copper for silver. The method used for this purpose is, when silver becomes scarce, to make all the payments for some time in silver; but if copper, to make them all for some time in that metal only.

87
Of the Chinese commerce.

The commerce of China is under the inspection of the tribunal of finances; but on this subject the Chinese entertain an opinion quite different from that of the Europeans. Commerce, according to them, is only useful as far as it eases the people of their superfluities, and procures them necessaries. For this reason they consider even that which is carried on at Canton as prejudicial to the interest of the empire. "They take from us (say the Chinese) our silks, teas, and porcelain: the price of these articles is raised throughout the provinces: such a trade therefore cannot be beneficial. The money brought us by Europeans, and the high-priced baubles that accompany it, are mere superfluities to such a state as ours. We have no occasion for more bullion than what may be necessary to answer the exigencies of government, and to supply the relative wants of individuals. It was said by Kouan-tse, two thousand years ago, That the money introduced does not enrich a kingdom in any other way than as it is introduced by commerce. No commerce can be advantageous long, but that which consists in a mutual exchange of things necessary or useful. That trade, whether carried on by barter or money, which has for its object the importing of articles that tend to the gratification of pride, luxury, or curiosity, always supposes the existence of luxury: but luxury, which is an abundance of superfluities among certain classes of people, supposes the want of necessaries among a great many others. The more horses the rich put to their carriages, the greater will be the number of those who are obliged to walk on

foot; the larger and more magnificent their houses are, Chin so much the more confined and wretched must those of the poor be; and the more their tables are covered with a variety of dishes, the more must the number of those increase who are reduced to the necessity of feeding upon plain rice. Men, united by society in a large and populous kingdom, can employ their industry, talents, and economy, to no better purpose than to provide necessities for all, and procure convenience for some."

The only commerce considered by the Chinese as History advantageous to their empire, is that with Russia and the Tartary; by which they are supplied with those furs, so necessary in the northern provinces. The disputes concerning the limits of the respective empires of Russia and China seem to have paved the way to this commerce. These disputes were settled by treaty on the 27th of August 1689, under the reign of Ivan and Peter Alexiowitz. The chief of the embassy on the part of Russia was Golovin governor of Siberia; and two Jesuits were deputed on the part of the emperor of China; and the conferences were held in Latin, with a German in the Russian ambassador's train, who was acquainted with that language. By this treaty the Russians obtained a regular and permanent trade with China, which they had long desired; but in return they yielded up a large territory, besides the navigation of the river Amour. The first intercourse had taken place in the beginning of the 17th century; at which time a small quantity of Chinese merchandise was procured by some Russian merchants from the Kalmuck Tartars. The rapid and profitable sale of these commodities encouraged certain Siberian waywodes to attempt a direct and open communication with China. For this purpose several deputations were sent to the emperor; and though they failed of obtaining the grant of a regular commerce, their attempts were attended with some consequences of importance. Thus the Russian merchants were tempted to send traders occasionally to Peking; by which means a faint connexion was preserved with that metropolis. This commerce, however, was at last interrupted by the commencement of hostilities on the river Amour; but after the conclusion of the treaty in 1689, was resumed with uncommon alacrity on the part of the Russians: and the advantages thence arising were found to be so considerable, that a design of enlarging it was formed by Peter the Great. Isbrand Ides, a native of the duchy of Holstein, then in the Russian service, was therefore despatched to Peking in 1692; by whose means the liberty of trade, before confined to individuals, was now extended to caravans. In the mean time, private merchants continued to trade as before, not only with the Chinese, but also at the head quarters of the Mogul Tartars. The camp of these roving Tartars, which was generally stationed near the confluence of the Orhon and Toula rivers, between the southern frontiers of Siberia and the Mogul desert, thus became the seat of an annual fair. Complaints, however, were soon made of the disorderly behaviour of the Russians; on which the Chinese monarch threatened to expel them from his dominions entirely, and to allow them neither to trade with the Chinese nor Moguls. This produced another embassy to Peking in 1719, when matters were again adjusted to the

China. for discharging the ordinary expences of government, something is left by way of reserve for answering accidental demands, and to be ready in cases of necessity. This sum becomes gradually less from the capital to cities of the first, second, and third class. A proper statement of what is paid in the provinces, of what is reserved in the different cities, or contained in the different treasuries of the empire, is subjected to the examination of the grand tribunal of finances. This revises the whole, and keeps an exact account of what is consumed, and of whatever surplus may be left.

⁹¹ Of lending money, and deficiencies in paying interest. Lending money upon interest has been in use in China for about 2000 years. It has often been abolished, and as often established. The interest, as has been already hinted, is no less than 30 per cent. and the year is only lunar. A tenth part of this interest is paid monthly: and concerning neglects of payment, the following laws have been enacted. "However much the debt may have accumulated by months or years, the principal and interest shall remain always the same. Whoever infringes this law shall receive 40 blows of a *pan-tsee*; or an hundred, if he uses any artifice to add the principal and interest together." This law is explained by the following. "Whoever shall be convicted before a mandarin of not having paid a month's interest, shall receive ten blows; twenty for two months, and thirty for three; and in this manner as far as sixty; that is to say, to the sixth month. The debtor is then obliged to pay principal and interest; but those who obtain payment by using violence and force are condemned to receive 24 blows.

⁹² Agriculture greatly encouraged. Many Chinese writers have endeavoured unsuccessfully to show why government should allow such exorbitant interest to be taken for money; but the most satisfactory and rational account seems to be, that the great interest of money prevents the rich from purchasing much land; as landed estates would only embarrass and impoverish them, their produce being so much inferior to that of money. The patrimony of a family in China is seldom divided; and it never happens there, as in almost every other country, that wealth and riches are engrossed by one part of the nation, while the other possesses nothing.

Agriculture is by the Chinese considered as the first and most honourable of all professions; so that in this empire the husbandman enjoys many and great privileges, while the merchant and mechanic are much less esteemed. He is considered as next in dignity to officers of state, from whom indeed they very frequently originate. The soldier in China cultivates the ground, and even the priests are employed in agriculture, when their convents happen to be endowed with land. From the principle that the emperor is absolute proprietor of the soil, one would imagine that the tenant must hold his share of it by a very precarious tenure; yet it is certain that when any man is dispossessed, his own culpable conduct is the cause. The Chinese are so habituated to consider a piece of land as their own, while they continue to be punctual in the payment of their rent, that a Portuguese resident in Macao who attempted to raise the rent of his tenants, ran the hazard of losing his life. There are no prodigiously overgrown farms in China, no monopolizers of farms, no wholesale dealers in grain, but every man has it in his

power to carry his produce to a free and open market. Chin Part of the crop is allowed to be used in distillation; but if the harvest happens to be bad, this operation is prohibited. In China, the tillage of the earth is not ⁹³ encouraged by law, but also by the example of Cerem the emperor, who annually tills the earth with his own hands. The beginning of spring in China is always reckoned to be in the month of February; but it belongs to the tribunal of mathematics to determine the precise day. The tribunal of ceremonies announces it to the emperor by a memorial; in which every thing requisite to be done by him is mentioned with the most scrupulous exactness. The sovereign then names ¹² of the most illustrious persons in his court to accompany him, and to hold the plough after he has performed his part of the ceremony. Among these there are always three princes of the blood, and nine presidents of supreme courts; and if any of them are too old and infirm to undergo the fatigue, the substitutes must be authorized by the emperor. The festival is preceded by a sacrifice, which the emperor offers up to *Chang-ti* (the supreme God); after which he and his attendants prepare themselves by three days fasting and continence. Others are appointed by the emperor, on the evening before the ceremony, to go and prostrate themselves at the sepulchre of his ancestors, and to acquaint them, that, on the day following, he intends to celebrate a grand sacrifice. This is offered upon a small mount a few furlongs distant from the city, which, by the indispensable rules of the ceremony, must be 50 feet in height. The *Chang-ti* is invoked by the emperor, who sacrifices under the title of sovereign pontiff, and prays for an abundant harvest in favour of his people. He then descends, accompanied by the three princes and nine presidents who are to put their hands to the plough along with him; the field set apart for this purpose being at a small distance from the mount. Forty labourers are selected to yoke the oxen, and to prepare the seed which the emperor is to sow; and which are of five different kinds, viz. wheat, rice, two kinds of millet, and beans. They are brought to the spot in magnificent boxes, carried by persons of the most distinguished rank. The emperor then lays hold of the plough, and turns up several furrows; the princes of the blood do the same, and then the presidents; after which the emperor throws into the furrows the five kinds of seeds already mentioned: lastly, four pieces of cotton-cloth, proper for making dresses, are distributed to each of the labourers, who assist in yoking the oxen and preparing the seeds; and the same presents are made to forty other persons who have only been spectators of the ceremony.

"We must not (says M. Grosier) judge of the Chinese peasants from those of Europe, especially in what ^{saints.} relates to the lights acquired by education. Free schools are very numerous in every province of China, and even some of the villages are not destitute of this advantage. The sons of the poor are there received as readily as those of the rich; their duties and their studies are the same; the attention of the masters is equally divided between them; and from this obscure source talents often spring, which afterwards make a conspicuous figure on the grand stage of life. Nothing is more common in China than to see the son

China, mand and order," &c. Over these inferior mandarins the inspector of the province has a very unlimited authority, and can, by his own power, deprive them of their employments for a great offence; nor does he consult the court excepting where the immediate punishment of the criminal is not necessary. Every one of the mandarins, of whatever rank or denomination, is obliged, once in three years, to give in writing an exact account of the faults he has committed in the execution of his office. If he is a mandarin belonging to any of the four first classes, this confession is examined at court; but if it is made by any of the inferior ones, it must be laid before the provincial tribunal of the governor. Government, however, is not satisfied even with this confession; inquiry is made into the truth of it, and the conduct of the mandarin is scrutinized with the utmost severity, the informations being subjected to the tribunal of mandarins; where they are carefully examined, the merits and demerits of those subjected to this political inquisition carefully balanced, and their names afterwards divided into three classes. The first consists of those for whom rewards and preferment are intended: the second, for whom gentle reproof and admonition are thought necessary; and the third, of those who are to be suspended for some time, or removed altogether, from their offices. Of these last some are allowed to continue; but they receive no salary, and are not only deprived of all their emoluments, but even of their honours. If they have been guilty of any action tending to oppress the people, or to occasion a famine or scarcity among the lower ranks, their punishment is not confined to dismission from their offices, but they are also criminally impeached. The family burying-place of every Chinese is accounted sacred; none dares cut down the trees with which it is overshadowed until they become decayed with age; and even then, not until their condition has been attested by a mandarin: but for certain crimes against government or the people, the burying-place of a mandarin is rased to the foundation. No kind of punishment, however, inflicted on a father, is supposed in the least to affect the character of his son; and therefore, when the latter is asked by the emperor concerning his family, he will perhaps coolly answer, "My father was disgraced for such a crime, my grandfather was beheaded for such another," without the acknowledgement being in the least detrimental. On the contrary, by great and important services, it is possible for him to wipe out these stains from the memory of his ancestors.

Though the empire of China is governed by Tartar priuces, the latter seem to bestow much more care and attention on the Chinese than their own natural subjects. Should any dispute arise between a Chinese and Tartar, the former must have greatly deviated from the rules of justice, if he is not acquitted even by those tribunals which are composed of half Chinese and half Tartars. The slightest fault committed by a Tartar mandarin is always severely punished; but the punishment of the Chinese is often mitigated if the delinquent be a Chinese; and the same severity is exercised towards those of the military department. Those faults, however, are punished with the greatest severity which hurt the interests of the people; for which reason they seldom fall a sacrifice to that class of petty

tyrants who in other countries prey upon and devour them. Every superior mandarin is obliged to inform himself of the faults of his inferiors, and expose them; nay, he would be punished for them himself if he did not.

Very little regard, as we have already had occasion Priv to observe, is paid to hereditary rights in China. Even of the princes of the blood enjoy no other privilege by birth but that of wearing a yellow girdle; and the names of their children, with the exact time of their birth, are inscribed in a yellow book appropriated to that purpose. Collateral princes are distinguished by an orange girdle, and their children are marked in a book of a red colour. The surnames of the princes of the reigning family are determined by the emperor alone; the rest not being allowed to assume any name that too much resembles those of the Moguls or Chinese. The rank even of the emperor's sons diminishes one degree every generation; so that, at the seventh, only the eldest branch has a title to wear the yellow girdle, the rest being sunk into the rank of plain citizens. An hereditary sovereignty, however, passes from one eldest son to another; and this title cannot be forfeited, unless the possessor be guilty of some crime. In this case the emperor appoints to the succession either one of his younger brothers or a cousin; but these must be always chosen from the same branch, as the lawful branch cannot be deprived of its right without the condemnation of all who compose it. The only hereditary authority of the other princes exists among these troops called the *Tartar bands*. There they enjoy, without opposition, that rank which they derive from their birth, but in every thing else are on a level with others. They are subjected to a military examination at stated periods, and are always promoted or degraded according to the degree of skill they exhibit. The same trial is undergone by the heir apparent and his sons; the only indulgence shown them being, that schools are appointed for their particular use. The princes are likewise indulged with a tribunal appropriated on purpose for them, and before which alone they can be tried. An insult offered to a prince decorated with the yellow girdle is punished with death; but if he has omitted to put it on, the aggressor escapes with a bastinading. A prince may be put to death with the emperor's consent; but he escapes every slighter corporeal punishment by paying a fine. Untitled princes have very few privileges superior to those of common citizens; and are generally very poor, unless possessed of some lucrative office. Thus they are sometimes reduced to the necessity of accepting the highest pay of a common soldier in the Tartar bands. When they, or any of their children, however, enter into the marriage-state, the emperor usually makes them a present of 100 ounces of silver. He will also relieve them on other occasions, assist their widows and orphans, &c. but in all this never departs from the most exact rules of economy; so that the mandarins in this respect are much better than the relations of the sovereign himself.

With regard to the ancient religion of China, F. F. A Amiot informs us, that after making every possible research, comparing and reasoning upon his observations, he at last concluded, that "The Chinese are a distinct people, who have still preserved the characteristic marks of their first origin; a people whose primitive

China. objects of their requests; but that, in offering up their prayers to the inferior objects of worship, they only implored their protection and mediation with the Chang-ti.

While the empire was confined within narrow bounds, one mountain was sufficient for the sacrifices; but in process of time it became necessary to consecrate four others. These were situated at the extremities of the empire, and were supposed to correspond with the four quarters of the world; and the prince went successively every year to one of these mountains to offer up sacrifices; taking occasion at the same time to show himself to his people, and to inform himself of their wants. This custom subsisted for a long time; but at length it was found convenient to add a fifth mountain in the centre of the empire; and ever since these have been called the five *Yo*, or the five mountains of sacrifice. This method of subjecting the emperor to regular annual journeys could not but be attended with many inconveniences. It was found necessary on this account to consecrate some spot in the neighbourhood of his palace, which might be substituted for the *Yo* upon all occasions when the emperor could not repair to them. An edifice was therefore erected, which at once represented the *Kiao*, *Tan*, and the *Hall of ancestors*. This last was a necessary part of the edifice; because it was incumbent on those who offered up sacrifices, first to repair to this hall, and acquaint their ancestors with what they were about to perform; and thither also they returned after sacrificing, to thank the same ancestors for the protection they had received from the Chang-ti; after which they offered up a sacrifice of thanksgiving in honour of them, and performed certain other ceremonies to show their respect. The building contained five separate halls, appropriated to different purposes; originally it had neither paintings nor ornaments of any kind, and a staircase of nine steps conducted to the principal entrance. Afterwards, however, it was much more richly ornamented, each of the five halls being decorated with columns, over which others were placed that supported a second roof. In succeeding times it was stripped of all its ornaments, with a view to bring back religion to its primitive simplicity. Its four gates were covered with fine moss, representing the branches of which the double fence of the ancient *Kiao* were formed. The ridge of the roof was covered with the same, and the whole was encompassed by a canal filled with water at the time of offering up the sacrifices. To this a second building was added, which they called the *temple of neatness*, and which was used only for purifications and ceremonies, the former being entirely consecrated to the worship of the Chang-ti.

At present there are only two temples in Peking, named the *Tian-tan* and the *Ti-tan*; in the construction of which all the elegance of Chinese architecture is displayed. These are both dedicated to the Chang-ti, but under different titles; in the one he is adored as the *eternal spirit*; in the other, as the creator and preserver of the world. The ceremonies of the modern sacrifices are greatly multiplied; and nothing can exceed the splendour and magnificence with which these solemnities are performed. Sometimes before the day appointed for the grand ceremony, the monarch, the grantees of the court, and all those whom their employments qualify to assist at the solemnity, prepare

themselves by retirement, fasting, and continence; no audience is given by the emperor, and the tribunals are entirely shut; marriages, funerals, rejoicings, and entertainments of every kind, are then forbidden. At last, on the day appointed, the emperor appears, attended by an innumerable multitude, and his person surrounded by a vast number of princes, lords, and officers, while every part of the temple seems to correspond with the magnificence of the sovereign; all the vases and utensils employed in the sacrifices are of gold, and cannot be applied to any other purpose; even the instruments of music are of enormous magnitude, and never used anywhere else. All this grandeur, however, serves only to display in a more eminent manner the humility and abasement of the monarch during his devotion; at which time he rolls in the dust, and speaks of himself before the *Chang-ti* in terms of the most abject submission and humiliation.

The purity of the ancient Chinese religion has, ^{to} Sect c however, been long contaminated by many idolatrous ^{Tao-} and fanatical sects. Among these, one named *Tao-sse* was founded by a philosopher called *Lao-kien* or *Lao-tse*, who was born 603 B. C. He died in an advanced age, leaving to his disciples a book entitled *Tao-te*, being a collection of 5000 sentences. His morality has a great resemblance to that of Epicurus. It consists principally in banishing all vehement desires and passions capable of disturbing the peace and tranquillity of the soul. According to him, the care of every wise man ought to be only to endeavour to live free from grief and pain, and to glide gently down the stream of life, devoid of anxiety and care. To arrive at this happy state he advises his followers to banish all thoughts of the past, and to abstain from every vain and useless inquiry concerning futurity, as well as all tormenting thoughts of ambition, avarice, &c. It was found by the disciples of this philosopher, however, that all their endeavours to obtain a perfect tranquillity of mind were vain, as long as the thoughts of death intervened; they therefore declared it possible to discover a composition from which drink might be made that would render mankind immortal. Hence they were led to the study of chemistry; and, like the western alchemists, wearied themselves in search of the philosopher's stone, until at last they gave themselves up to all the extravagancies of magic.

The desire of avoiding death, together with the credulity natural to unenlightened minds, quickly produced a number of converts to the sect of *Tao-sse*. Magical practices, the invocation of spirits, and the art of foretelling events by divination, quickly diffused themselves over the empire, and the imbecility of the emperors contributed to propagate the deception. Temples consecrated to spirits quickly reared their heads in every corner of the empire; and two of the most celebrated of the sect were authorized to maintain public worship there after the form which had been prescribed by their master. At the same time they distributed, and sold at a dear rate, images of the imaginary spirits with which they had peopled the heavens and the earth. These were, by their command, worshipped as so many deities independent of the Supreme Being: and in like manner, several of the ancient emperors were invoked as gods.

Being patronized by the emperors of several dynasties,

¹⁰⁶ China, ing the most absurd stories concerning the missionaries; as that they pluck out the eyes of their converts to construct telescopes with, &c. The literati, however, and the more sensible part of the nation, hold them in the greatest contempt.

Ridiculous We shall conclude this detail of the Chinese religion with giving an account of one other superstition of the *fong-choui*, which seems peculiar to the nation. It is named *fong-choui*, which signifies wind and water. By this they mean the lucky or unlucky situation of a house, burying-place, &c. If any imprudent person has built a house close to that of a Chinese, in such a manner that the angle formed by its roof flanks the wall or roof of the former house, the proprietor ever after lives in terror of utter ruin and destruction from the malignant influence of that angle. An implacable hatred instantly commences betwixt the two families, and often gives rise to a law-suit, which furnishes matter of discussion for some of the superior tribunals. If no redress can be had at law, however, the Chinese is then reduced to the necessity of erecting, on the top of his house, an enormous image of a dragon, or some other monster, with its mouth gaping towards the angle, and, as it were, threatening to swallow it up; after which the apprehensions of the proprietor begin to subside, and tranquillity is restored to the family. In this manner the governor of *Kien-tchang* secured himself from the influence of the church of the Jesuits, which, being built on an eminence, overlooked his palace. Not depending, however, entirely on the good offices of his tutelary dragon, he also took the wise precaution of altering his principal apartments, and raising, at the distance of 200 paces from the church, a kind of large façade three stories high. But unluckily the death of his successor was attributed to this façade; for the mandarin being attacked with a disorder in the breast, which made him spit up a white phlegm, this symptom was thought to be owing to the walls of the façade, which were very white, and which were forthwith painted black. The salutary precaution, however, happened to be taken too late; for the governor died notwithstanding the black colour of the walls.

"We should never have done (says M. Grosier), were we to relate all the superstitious ideas of the Chinese, respecting the lucky and unlucky situation of houses, the quarter which doors ought to front, and the plan and day proper for constructing the stoves in which they cook their rice." But the object on which they employ their greatest care is the choice of the ground and situation for a burying-ground. Some quacks follow no other profession than that of pointing out hills and mountains which have an aspect favourable for works of that kind. When a Chinese is persuaded of the truth of such information, there is no sum which he would not give to be in possession of the fortunate spot. The greater part of the Chinese are of opinion that all the happiness and misfortunes of life depend upon the *fong-choui*.

¹⁰⁷ Jews and Mahometans in China. A colony of Jews was established in China about the year 206 B. C.; but they are now reduced to a small number of families at *Cai-fong*, the capital of the province of Honan. The Mahometans have multiplied much more than the Jews. It is about 600 years since they first entered the empire, where they

have formed different establishments. At first their ^{Chi} number was augmented only by marriages; but for some time past they have been more particularly attentive to the extending of their sect and propagating their doctrine. The principal means employed for this purpose are, to purchase a great number of children brought up in idolatry, whom their poor parents are glad to part with; and these they circumcise, and afterwards instruct in the principles of their religion. During the time of a famine which desolated the province of Chang-tong, they purchased more than 10,000 of these children; for whom, when grown up, they procured wives, built houses, and even formed whole villages of them. They are now become so numerous, that in the places where they reside they entirely exclude every inhabitant who does not believe in their prophet, and frequent a mosque.

With regard to the manners of the Chinese, they ¹⁰⁸ bear no resemblance to those of any other nation; and, if we may believe their historians, they are the same at this day that they were 4000 years ago. The women are condemned almost to perpetual imprisonment within the precincts of their own houses, and are never seen even by their intended husbands before marriage. He knows nothing of her looks or person, but from the account of some female relation or confidant, who in such cases acts the part of match-maker; though if imposed upon either with regard to her age or figure, he can have recourse to a divorce. The same matrons who negotiate the marriage, also determine the sum which the intended husband must pay to the parents of the bride: for in China a father does not give a dowry to his daughter; it is the husband who gives a dowry to the wife. When the day appointed for the marriage is arrived, the bride is placed in a chair or close palanquin, the key of which is committed to the care of a trusty domestic, who must deliver it to none but the husband. The latter, richly dressed, waits at his gate for the arrival of the procession. As soon as it approaches, the key is put into his hands; he eagerly opens the chair, and for the first time perceives his good or bad fortune. If he is contented with his new spouse, the bride descends and enters the house, where the marriage is concluded by feasting and merriment as in other countries; but if the bridegroom is very much disappointed, he suddenly shuts the chair, and sends the bride home to her relations. To get rid of her in this manner, however, costs a sum equal to what he originally gave in dowry to obtain her.

The Chinese women, even of the first rank, seldom quit their apartment, which is situated in the most retired part of the house, and in which they are secluded from all society but that of their domestics. The book of ceremonies requires that there should be two apartments in every house; the exterior one for the husband, the interior for the wife. They must even be separated by a wall or wooden partition, the door of which is carefully guarded; nor is the husband at liberty to enter the wife's apartment, or she to quit it, without sufficient reason. According to the same book, the prattling and loquacity of a woman are reckoned sufficient grounds for a divorce. If this be founded in fact, the women of China are either unexampled for taciturnity, or else multitudes of divorces must be daily occurrences. A woman, however, cannot be divorced on

China. nations which they are obliged to undergo before they can be admitted to the first degree. Du Halde gives a remarkable instance, viz. that "a candidate for degrees having, contrary to order, made use of an abbreviation in writing the character *ma*, which signifies a horse, had the mortification of seeing his composition, though in other respects excellent, rejected merely on that account; besides being severely rallied by the mandarin, who told him a horse could not walk unless he had all his legs."

Aster the scholar has made himself master of the characters, he is then allowed to compose; but the subject of his composition is pointed out to him only by one word. Competitions are likewise established in China, but most of them are of a private nature. Twenty or thirty families, who are all of the same name, and who consequently have only one hall for the names of their ancestors, agree among themselves to send their children twice a month to this hall in order to compose. Each head of a family in turn gives the subject of this literary contest, and adjudges the prize; but this costs him a dinner, which he must cause to be carried to the hall of competition. A fine of about tenpence is imposed on the parent of each scholar who absents himself from this exercise.

Besides these private competitions, every student is obliged to compete at least twice a-year under the inspection of an inferior mandarin of letters styled *Hia-kouan*. It frequently happens also, that the mandarins of letters order these students to be brought before them, to examine the progress they have made in their studies, to excite a spirit of emulation among them, and make them give such application as may qualify them for any employment in the state. Even the governors of cities do not think it below their dignity to take this care upon themselves; ordering all those students who reside near them to appear before their tribunal once a month: the author of the best competition is honoured with a prize, and the governor treats all the candidates on the day of competition at his own expence. In every city, town, and village in China, there are schoolmasters who teach such sciences as are known in that country. Parents possessed of a certain fortune provide masters for their children, to attend and instruct them, to form their minds to virtue, and to initiate them in the rules of good breeding and the accustomed ceremonies, as well as to make them acquainted with the laws and history, if their age will admit. These masters have, for the most part attained to one or two degrees among the literati, and not unfrequently arrive at the first employments of the state.

The education of the Chinese women is confined to giving them a taste for solitude, and accustoming them to modesty and silence; and if their parents are rich, they are likewise instructed in such accomplishments as may render them agreeable to the other sex.

There is little distinction in China between the ordinary dress of men and women. Rank and dignity are distinguished by certain accessory ornaments; and the person would be severely chastised who should presume to assume them without being properly authorized. The dress in general consists of a long vest which reaches to the ground. One part of this vest, viz. that on the left side, folds over the other, and is fastened to the right by four or five small gold or silver but-

tons, placed at a little distance from one another. The sleeves are wide towards the shoulder, growing narrower as they approach the wrist, where they terminate in the form of a horse shoe, covering the hands entirely, and leaving nothing but the ends of the fingers to be seen. Round their middle they wear a large girdle of silk, the ends of which hang down to their knees. From this girdle is suspended a sheath containing a knife and two of those small sticks which they use as forks. Below this robe they wear a pair of drawers, in summer made of linen, and in winter of satin lined with fur, sometimes of cotton, and in some of the northern provinces of skins. These are sometimes covered with another pair of white taffety. Their shirts are always very short and wide, of different kinds of cloth, according to the season. Under these they wear a silk net to prevent it from adhering to the skin. In warm weather they have their necks always bare; when it is cold, they wear a collar made of silk and sable, or fox's skin, joined to their robe, which in winter is trimmed with sheep skin, or quilted with silk and cotton. That of people of quality is entirely lined with beautiful sable skins brought from Tartary, or with the finest fox's skin, trimmed with sable; and in the spring it is lined with ermine. Above their robe they wear also a kind of surtout with wide sleeves, but very short, which is lined in the same manner. The emperor and princes of the blood only have a right to wear yellow; certain mandarins have liberty to wear satin of a red ground, but only upon days of ceremony: in general they are clothed in black, blue, or violet. The common people are allowed to wear no other colours but blue or black; and their dress is always composed of plain cotton cloth.

Formerly the Chinese were at great pains to preserve their hair; but the Tartars, who subdued them, obliged them to cut off the greater part of it, and to alter the form of their clothes after the Tartar fashion. This revolution in dress was not effected without bloodshed, though the conquerors at the same time adopted in other respects the laws, manners, and customs of the conquered people. Thus the Chinese are painted as if bald, but they are not so naturally; that small portion of hair which they preserve behind, or on the tops of their heads, is all that is now allowed them. This they wear very long, and plait like a tail. In summer they wear a kind of cap shaped like an inverted cone, lined with satin, and covered with ratan or cane very prettily wrought. The top terminates in a point, to which they fix a tuft of red hair, which spreads over it, and covers it to the brim. This hair grows between the legs of a kind of cow, and is capable of taking any colour, especially a deep red. This ornament is much used, and any person who chooses may wear it.

The mandarins and literati wear a cap of the same form as the foregoing, only it is lined with red satin, and covered on the outside with white. A large tuft of the finest red silk is fixed over it, which is suffered to hang down or wave with the wind. People of distinction generally use the common cap when they mount on horseback or during bad weather; being better calculated to keep off rain, and shelter those who wear it from the rays of the sun. For winter they have another cap bordered with sable, ermine, or fox's

China. pliments, and begs to be excused from sitting in such an honourable seat, which nevertheless he accepts of; and all the rest of the guests do the same, otherwise the ceremonial would be gone through with each of them. The entertainment is concluded by some theatrical representations, accompanied with the music of the country; which, however, would give but little pleasure to an European. Besides the guests, a certain number of people are admitted into the court in order to behold these theatrical representations; and even the women are allowed to view them through a wicket, contrived so that they may behold them without being seen themselves.

The entertainments of the Chinese are begun, not by eating, but by drinking; and the liquor they drink must always be pure wine. The intendant, or *maitre d'hotel*, falling down on one knee, first invites the guests to take a glass; on which each of them lays hold with both hands of that which is placed before him, raising it as high as the forehead, then bringing it lower down than the table, and at last putting it to his mouth: they all drink together, and very slowly, taking three or four draughts. While they are drinking, the dishes on each of the tables are removed, and others brought in. Each of the guests has twenty-four set before him in succession; all of them fat, and in the form of ragouts. They never use knives in their repasts; and two small pointed sticks, ornamented with ivory or silver, serve them instead of forks. They never begin to eat, however, until they are invited by the *maitre d'hotel*; and the same ceremony must be gone through every time they are going to take a cup of wine, or begin a new dish. Towards the middle of the entertainment the soup is brought in, accompanied with small loaves or meat pies. These they take up with their small sticks, steep them in the soup, and eat them without waiting for any signal, or being obliged to keep time with the rest of the guests. The entertainment, however, continues in other respects with the utmost formality until tea is brought in; after which they retire from table and amuse themselves in another hall, or in the garden, for a short time, until the dessert be brought in. This, like the entertainment itself, consists of 24 dishes, which are made up of sweetmeats, fruits differently prepared, hams and salted ducks which have been baked or dried in the sun, with shell and other kinds of fish. The same ceremonies which preceded the repast are now renewed, and every one sits down at the same place he occupied before. Larger cups are then brought in, and the master invites the guests to drink more freely.

These entertainments begin towards evening, and never end till midnight. A small sum of money is given to the domestics; when every one of the guests goes home in a chair preceded by several servants, who carry large lanterns of oiled paper, on which are inscribed the quality, and sometimes the name, of the master. Without such an attendance they would be taken up by the guard; and the day following they never fail to return a card of thanks to the officer.

Their method of drinking tea is not like that of other nations. A small quantity of bohea, sufficient to tinge the water and render it palatable (for they

drink no green), is taken in the morning, and thrown Chi into a vessel adapted to the number in family. This stands till milk-warm; in which state it is kept the whole day, and a cup drank now and then without sugar or milk, in order to exhilarate the spirits when exhausted by fatigue: and if a stranger call by accident, or a visitor by appointment, the first thing presented, after the usual ceremonies of meeting, is a very small pipe filled with tobacco of their own growth, and a cup of the tea already mentioned, or of some fresh made of better quality, together with sweetmeats, &c. Tea is the daily beverage in China, and is drank by all ranks of people.

Some change has been made in the ceremonial of the Chinese by the Tartar conquest, and some new dishes also introduced by the same means; and here M. Grosier observes, that the Tartars are much better cooks than the Chinese. All their dishes are highly seasoned; and by a variation in the proportions of their spiceries, they are able to form a variety of dishes out of the same materials. None of their viands, however, are more esteemed than stags sinews, and the nests of a particular species of birds, which have the property of giving a most agreeable relish to whatever is mixed with them. Other dishes are introduced at these repasts, which would be accounted very disagreeable with us; such as the flesh of wild horses, the paws of a bear, and the feet of several wild animals. The greater part of these provisions are brought preserved in salt from Siam, Camboya, and Tartary.

The wines of China have no resemblance to ours Chi either in taste or quality, being procured from rice, wine and not from the vine. A particular kind of rice is employed for making them, and the grain is steeped for 20 or 30 days in water, into which ingredients of a different nature are successively thrown: they afterwards boil it; and as soon as it becomes dissolved by the heat, it immediately ferments, and throws up a vaporous scum not unlike new wine. A very pure liquor is found under this scum, which is drawn off and put into vessels well glazed: From the remaining leys an inflammable spirit is made, little inferior, and sometimes even superior to the European. Another kind of wine is used by the Chinese, or rather Tartars, called *lamb wine*. It is very strong, and has a disagreeable smell; and the same may be believed of a kind of spirit distilled from the flesh of sheep; though this last is sometimes used by the emperors.

These entertainments exceed the bounds of ordinary repasts; the Chinese being naturally sober, and those in easy circumstances living chiefly on pork; for which reason a great number of hogs are bred in the country. Their flesh is much easier of digestion, and more agreeable to the taste than those of Europe. The Chinese hams are in high estimation. The common people live very poorly; being satisfied, in time of scarcity, with the flesh of dogs, horses, cats, and rats, which last are sold publicly in the streets.

There are several public festivals annually celebrated Pai in China. One is that already mentioned, in which tui the emperor tills the ground with his own hands. This is also celebrated on the same day throughout the empire. In the morning the governor of every city comes forth

China.

The emperor marches with still more magnificence, in proportion to his superior quality. The trumpets used in this procession are about three feet long, eight inches in diameter at the lower extremity, and pretty much resembling a bell in shape: their sound is peculiarly adapted to that of the drums. His cavalcade is closed by 2000 mandarins of letters, and as many of arms. Sometimes the great mandarins, as well as the emperor, travel in barks: their attendance is then somewhat different, but the magnificence almost the same. The honours paid to a viceroy who has governed a province with equity are exceedingly great on his departure from it. He has scarcely left the capital of the province when he finds on the highway, for the space of two or three leagues, tables ranged at certain distances, each of which is surrounded with a long piece of silk that hangs down to the earth. On these wax candles are placed even in the open day: perfumes are burnt upon them; and they are loaded with a profusion of victuals, and various kinds of fruit, while tea and wine are prepared for him on others. The people throw themselves on their knees as he passes, and bow their heads even to the earth; some shed tears, or pretend to do so; some present him with wine and sweet-meats; others frequently pull off his boots and give him new ones. These boots, which he has perhaps used only for a moment, are considered as a valuable monument; those first taken off are preserved in a cage over the gate of the city; the rest are carefully kept by his friends.

118
Knavish disposition of the Chinese.

Hitherto our author, M. Grosier, has seemed inclined to give a favourable idea of the Chinese, and to cause us look upon them as many degrees superior to ourselves in the practice of virtue and morality; but when he comes to give an account of their dealings in trade, he is then obliged to confess that they are as dishonest and knavish a race as any that exist. "The most frequented fairs of Europe (says he) afford but a faint idea of that immense number of buyers and sellers with which the large cities of China are continually crowded. We may almost say, that the one half are employed in over-reaching the other. It is, above all, against strangers that the Chinese merchants exercise, without any sense of shame, their insatiable rapacity. Of this F. du Halde gives a striking example, which might be supported by many others: 'The captain of an English vessel bargained with a Chinese merchant at Canton for several bales of silk, which the latter was to provide against a certain time. When they were ready, the captain went with his interpreter to the house of the Chinese merchant to examine whether they were sound and in good condition. On opening the first bale, he found it according to his wish, but all the rest were damaged and good for nothing. The captain on this fell into a great passion, and reproached the merchant in the severest terms for his dishonesty. The Chinese, after having heard him for some time, with great coolness, replied, ' Blame, Sir, your knave of an interpreter: he assured me that you would not inspect the bales.'

" The lower class of people are, above all, very dexterous in counterfeiting and adulterating every thing they sell. Sometimes you think you have bought a capon, and you receive nothing but skin; all the rest has been scooped out, and the place so ingeniously filled,

that the deception cannot be discovered till the moment you begin to eat it. The counterfeit hams of China have been often mentioned. They are made of a piece of wood cut in the form of a ham, and coated over with a certain kind of earth which is covered with hog's skin. The whole is so curiously painted and prepared that a knife is necessary to detect the fraud. Mr O'beck relates, that having one day observed a blind man carrying about for sale some of those trees called by the Chinese, *Fokei*, he purchased one, which to appearance had fine double red and white flowers; but on closer examination, he found that the flowers were taken from another tree, and that one calyx was so neatly fitted into the other, with nails made of bamboo, that he should scarcely have discovered the deceit had not the flowers begun to wither. The tree itself had buds, but not one open flower.

" The robbers in China signalize themselves also by the dexterity and ingenuity which they display in their profession. They seldom have recourse to acts of violence, but introduce themselves into a house either privately or by forming some connection with the family. It is as difficult in China to avoid robbery as it is to apprehend the criminal in the fact. If we are desirous of finding among the Chinese openness of temper, benevolence, friendship, and, lastly, virtue, we must not seek for it in cities, but in the bosom of the country, among that class of men who have devoted themselves to labour and agriculture. A Chinese rustic often discovers moral qualities which would add lustre to the character of men of the most exalted rank. It appears that rural life naturally inspires sentiments of benevolence; by continually receiving the gifts of nature, the mind is enlarged, and men are insensibly accustomed to diffuse them to those around them."

The internal commerce of China is much greater than that of all Europe; but its foreign trade is by no means equal to that of any of the grand European powers. Its internal commerce is greatly facilitated by the vast number of canals and rivers with which the country is intersected. The Chinese, however, are not at all fitted for maritime commerce: Few of their vessels go beyond the straits of Sunda; their longest voyages to Malacca extended only as far as Acheen, towards the straits of Batavia, and northwards to Japan.

Their commerce with the last mentioned island, considering the article of exchange, which they procure at Camboya or Siam, produces them cent. per cent. Their trade with the Manillas brings only about 50 per cent. Their profit is more considerable about Batavia; and the Dutch spare no pains to invite them to traffic at their settlements. The Chinese traders go also, though not very frequently, to Acheen, Malacca, Thor, Patan and Ligor, belonging to Siam and Cochinchina; from whence they bring gold and tin, together with some objects of luxury for the table. A great obstacle to the foreign commerce of the Chinese is their indifference about maritime affairs, and the bad construction of their vessels. This they themselves acknowledge, but say, that any attempt to remove it would be derogating from the laws, and subverting the constitution of the empire.

The burying-places in China are always situated at

China. men. The eldest son, clothed in a frock of canvas, having his body bent and leaning on a staff, follows near the coffin; and behind him his brothers and nephews, but none of them clothed in canvas. Then come the relations and friends, all clad in mourning, and followed by a great number of chairs covered with white stuff, which contain the wives and female slaves of the deceased. These make great show of sorrow by their doleful cries; but M. Grosier observes, that, in spite of all they can do, the lamentations of the Chinese are so methodical, that an European would be apt to conclude that they were the effects of art rather than the natural effusions of a mind agitated and oppressed with grief. When they arrive at the burying place, the coffin is deposited in a tomb appropriated for it, not far from which there are tables arranged in different balls, and on which the assistants are entertained with great splendour. The entertainment is sometimes followed by fresh marks of homage to the corpse; but these are often changed into thanks to the eldest son; who, however, answers only by signs. But if the deceased was a grandee of the empire, a certain number of his relations never leave the tomb for a month or two. There they reside in apartments purposely provided for them, and every day renew their marks of grief in company with the children of the deceased. The magnificence of these funeral ceremonies is proportioned to the wealth or dignity of the deceased. That of one of the brothers of the emperor was attended by 16,000 people, each of whom had a particular office assigned him relating to the ceremony.

¹²¹ Mourning.

Mourning continues in China for three years; and during all this time they are obliged to abstain from the use of flesh and wine; nor can they assist at any entertainment of ceremony, or attend any public assembly. At first they are not even permitted to go abroad; and when they do so they are carried in a chair covered with a white cloth. Sometimes the filial piety of the Chinese is carried to such a length, that they preserve the bodies of their deceased fathers in their houses for three or four years; and those who do so impose also upon themselves a great number of other duties, using no other seat during the day but a stool covered with white serge, and no other bed but a plain mat made of reeds, which is placed near the coffin.

¹²² Diversions of hunting and fishing.

According to M. Grosier, the only diversions of the Chinese are those of hunting and fishing, dancing not being practised, and gaming forbidden by law. Fishing is considered by them rather as an object of commerce and industry than amusement. They catch fish by various methods; using nets in their great fisheries, but lines in the private. In certain provinces also they use a certain kind of bird, whose plumage greatly resembles that of a raven, but with a much longer bill, very sharp and hooked. This method of fishing is practised in boats, of which great numbers may be seen on the river about sun-rising, with the fishing-birds perched on their prows. These birds are taught to catch fish almost in the same manner that dogs pursue game. The fishermen, after making several turns with their boats, beat the water strongly with one of their oars. This serves as a signal to the birds, who instantly plunge into the water, and diving, swallow as many small fishes as they can, repairing immediately

afterwards to the boat, and carrying a large one by the middle in their bill. The small ones are prevented from passing into the stomach by a ring placed on purpose to confine its gullet: and thus the fisherman by stroaking its neck with the head downwards, makes the bird disgorge all those small fish it has swallowed. When they have done fishing, the rings are taken off, and the birds allowed to feed. When the fish happens to be too large for a single bird, the others have sagacity enough to assist it; one taking it by the tail, another by the head, &c. and thus they transport it to their master.

Another method of fishing, practised only in China, is as follows: They nail a board about two feet in breadth, which is covered with a white shining kind of varnish, upon the edges of a long narrow boat, from one end to the other. This board is placed in such a manner as to slope almost imperceptibly to the water. It is used only in the night-time, and is always turned towards the moon, that the reflection of light from the luminary may increase the splendour of the varnish. The fish in sporting, often mistake this varnished board for water; and endeavouring to throw themselves into it, fall into the boat.

The soldiers have a particular method of fishing with a bow and arrow; the latter of which is fixed to the bow by a string, both to prevent it from being lost, and to enable them to draw out the fish which the arrow has pierced; others make use of tridents to catch large fish which are sometimes found in the mud.

Besides these diversions the Chinese have some strolling players, but no regular theatres; they have likewise musicians and singers, but no operas, or indeed any public spectacle worthy of notice.

The language of the Chinese is not only very ancient, but, in M. Grosier's opinion, is still spoken as in these the most early ages without any variation. His reasons for this opinion are, 1. We do not perceive in history, nor even in the most fabulous traditions, a single fact tending to occasion any doubt of the language spoken by the ancient Chinese being different from that used at present. 2. China has never changed its inhabitants; and if revolutions have occasioned any mixture of new languages, it appears that the ancient language has always been predominant, and that the new settlers have learned and spoken it, as the Manchew Tartars after their conquest. 3. The most intelligent and discerning of the literati agree, that the first chapters of the *Chou-king* were written under the reign of Yao, 2300 years before Christ; and in these several speeches of the first emperors are related word for word; and it is not probable that the language of these princes was different from that of the historian. 4. A compliment paid to Yao by one of his subjects, with the answer of that prince, are still preserved, as well as two songs composed under the same reign. 5. The most ancient inscriptions in China are all in the language spoken throughout the empire at this day. 6. The Chinese have borrowed nothing from other nations; and their attachment to their own customs, and to antiquity, must undoubtedly be very unfavourable to any innovation. The language spoken by the vulgar, indeed, must have undergone some changes; but these may be accounted trivial, affecting only

China. decline. They pretend indeed, but without adducing any satisfactory proof of its truth, that the monuments of literature were destroyed by the tyrant She-whang-te, 200 years before the Christian era, that succeeding generations might consider him as the first civilized emperor who had swayed the sceptre over that extensive country. The chief works at present among them which are most valued, studied, and least understood, are the five classics collected by their favourite Cong-foo-tse, 450 years B. C. and which it seems had the good fortune to escape the unlettered fury of She-whang-te. These classics are enumerated by Mr Barrow in the following order.

1. *Shoo-kiag.* A collection of records and annals of various princes, commencing more than 2000 years B. C.

2. *Shee-king.* Odes, sonnets, and maxims; most of them so abundant in metaphor, and so obscure, that much of the sense is to be made out by the translator.

3. *Ye-king.* The perfect and the broken lines of Fo-shee; the most ancient relick in China, and perhaps the first attempt at written language: now perfectly incomprehensible.

4. *Chung-choo.* Spring and autumn. The history of some of the kings of Loo: the work principally of Cong-foo-tse.

5. *Lee-kee.* Ceremonies and moral duties, a compilation of Cong-foo-tse.

Without a complete change of the Chinese language, and a more extensive and friendly intercourse with foreign nations, it is not at all probable that that people will ever rank high for their knowledge of literature.

There are five kinds of writing mentioned by the Chinese literati; the most modern of which is a method of tracing out the characters with a pencil. This is difficult, and requires much experience; at any rate it disfigures the characters greatly, and is therefore only used in the prescriptions of physicians, prefaces to books, and inscriptions of fancy. The tracing of characters with neatness and accuracy, however, as we have already had occasion to observe, is greatly admired in China. They are often preferred to the most elegant painting; and some will give a most exorbitant price for a page of an old book, if it happens to be neatly written. They pay particular attention to well formed characters even in the most common books; and if any of the leaves happen to fall off, will replace them with the greatest attention. To apply them to any vile purpose, tread them under foot, &c. would be reckoned an unpardonable violation of decency and politeness; nay, it often happens, that workmen, such as masons and joiners, dare not tear a printed leaf of paper fixed to the wall.

Punctuation was not formerly used in China, nor are points as yet employed in works of an elevated style, or such as are to be presented to the emperor. Poetry is seldom an object of attention, though the taste for it seems to be pretty general in China. Their versification has its rules, and is no less difficult than that of other nations. Only the most harmonious, energetic, and picturesque words, are to be employed, and they must always be used in the same sense in which they were used by the ancients. Each verse can con-

124
Chinese
writing.

125
Of their
poetry.

tain only a certain number of words; all of which must be ranged according to the rules of quantity, and terminate in rhyme. The number of verses in a strophe is not determined; but they must be uniform, and present the same distribution of rhymes. The small number of poetical expressions contained in the Chinese language has rendered it necessary to extend the poetical licence to a great length in this respect. The Chinese poets are allowed to employ a blank verse in every four. They are acquainted with most kinds of poetry in use among us. They have stanzas, odes, elegies, idyls, eclogues, epigrams, satires, and even *bouts rimes*. The common people have also ballads and songs peculiar to themselves. Some of the most distinguished of the literati have even thought it of importance enough to turn the most celebrated maxims of morality, with the rules of civility, into verse. Their poetry is seldom disgraced by any kind of obscenity; and indeed any such thing would be severely punished by government. That severe attention with which every thing tending to corrupt the morals is watched in China, prohibits not only poems of this kind, but likewise romances of all sorts. The police, however, permits such novels as have a useful tendency, and in which nothing is introduced prejudicial to sound morality. Every author who writes against government is punished with death, as well as all those who have had any hand in the printing or distribution of his works.

The arts of making paper and printing have been long known among the Chinese. That kind of paper now in use was first manufactured about 105 years before the Christian era. Before that period they used cloth, and various kinds of silk stuff, instead of paper; and to this day they still preserve a custom of writing the praises of the dead upon large pieces of silk, which are suspended on one side of the coffin, and carried in funeral processions; and of ornamenting their apartments with maxims and moral sentences written in the same manner. In ages still more early, they wrote with a kind of style upon pieces of bamboo, or even upon plates of metal. The first paper was invented by a mandarin. He took the bark of trees, hemp, and old pieces of silk-stuff, boiling them together until they were reduced to a kind of paste, of which he formed his paper; which by degrees was brought to perfection, and the art of whitening and giving it a lustre found out. A great number of different substances are now used in this empire for making paper; such as the bamboo reed, the cotton shrub, the bark of the plant called kou-chu, and of the mulberry tree; hemp, the straw of wheat and rice, parchment, the cods of the silk-worm, and several other substances unknown in Europe. In this manufacture the bark of trees and shrubs is used, and the woody substance of the bamboo and cotton tree, after it has been macerated and reduced to a thin paste. Most of the Chinese paper, however, is attended with the disadvantage of being very susceptible of moisture, readily attracts the dust, and worms insensibly get into it: to prevent which inconveniences, it is necessary to beat the books often, and expose them to the sun. That made of cotton is the prettiest, and most used of any. All of them, however, are much softer and smoother than ours; which is absolutely necessary for their method of writing with

¹³⁰ China. particular use of two kinds; one named *touan-tsé*, a kind of satin much stronger, but which has less lustre, than that of Europe; the other a kind of taffety, of which they make drawers and linings. It is woven exceedingly close, and is yet so pliable that it may be rumpled and rubbed between the hands without any crease; and even when washed like cotton-cloth, it loses very little of its lustre. They manufacture also a kind of gold brocades, but of such a slight nature, that they cannot be worn in clothes: they are fabricated by wrapping fine slips of gilt paper round the threads of silk.

Porcelain. Porcelain is another great branch of Chinese manufacture, and employs a vast number of workmen. The finest is made in a village called *King-te-Ching* in the province of *Kiang-si*. Manufactories have also been erected in the provinces of *Fo-kien* and *Canton*, but their produce is not esteemed: and one which the emperor caused to be erected at Peking, in order to be under his own inspection, miscarried entirely.

The Chinese divide their porcelain into several classes, according to its different degrees of fineness and beauty. The whole of the first is reserved for the use of the emperor, so that none of it ever comes into the hands of other persons, unless it happens to be cracked or otherwise damaged in such a manner as to be unworthy of being presented to the sovereign. Among that sent to the emperor, however, there is some porcelain of an inferior quality, which he disposes of in presents. There is some doubt, therefore, whether any of the finest Chinese porcelain was ever seen in Europe. Some value, however, is now put upon the European porcelain by the Chinese themselves.

¹³¹ Glass of little estimation. The use of glass is very ancient in China, though it does not appear that great value was ever put upon this kind of ware, the art of manufacturing it having been frequently lost and revived again in this empire. They greatly admire the workmanship of the European crystal, but prefer their own porcelain, which stands hot liquors, and is much less liable to be broken. The little estimation in which this substance was held, is even mentioned by their own writers in speaking of the false pearls, mirrors, and other toys which were made in former ages. The remembrance of a very large glass vessel, however, which was made in 627, is still preserved; and of which it was said that a mule could as easily enter it as a gnat could enter a pitcher. In order to transport this monstrous vessel from the place where it was manufactured to the emperor's palace, it was necessary to inclose it in a net, the four corners of which were fixed to four carriages. The same indifference with regard to glass is still entertained by the present emperors; however, a glass-house is established at Peking, where a number of vases and other works are made; and these are so much the more difficult in the execution, as none of them are blown. This manufactory, as well as many others, is considered only as an appendage of the court, destined for the purposes of pomp and magnificence.

¹³² Medicine. It seems evident that medicine must have been one of the earliest studies to which mankind turned their attention, at least when they had attained to some degree of civilization. It is the common lot of humanity to be born to trouble as the sparks fly upward, and therefore an assiduous application to the study of those diseases

to which man is subject, either with a view to effect a radical cure, or even to mitigate the virulence of their symptoms, must have secured to such characters the esteem and admiration of the world. Even savages have discovered respect for such of their own nation as could remove obstructions, heal bruises, or administer relief to the miserable in any shape whatever. The Chinese in this respect are perfectly unique, and seem to differ from every nation under heaven in their notions of medicine. They have no public seminaries where the healing art may be taught, because they do not consider the knowledge of any branch of medicine as in the smallest degree necessary. The very best performances of this nature to be met with in China, are little more than mere enumerations of the names and supposed qualities of different plants, —a sufficient stock of knowledge for constituting a Chinese physician. In a country where the people are so credulous, and the medical art at such a low ebb, it would be a singular circumstance to find no quacks. In every city, therefore, of this vast empire, multitudes are to be met with continually vending nostrums, as pretended specifics for some disease or other, and the easy credulity of the people affords them a comfortable subsistence.

Were the Chinese perpetual strangers to every species of disease, it would enable us to account for their unnatural apathy or indifference about the study of physic; but it will remain an inexplicable paradox, when we are assured upon undoubted authority, that they are subject to a multiplicity of distempers. The smallpox, ophthalmia, contagious fevers, sometimes the venereal or Canton ulcer, as it is denominated by themselves, are a few of the maladies incident to the Chinese, which might constitute a powerful stimulus, one would imagine, to the study of physic, with unremitting assiduity, which it is certain they do not, as appears from the subsequent assertion of Dr Gregory. "In the greatest, most ancient, and most civilized empire on the face of the earth, an empire that was great, populous, and highly civilized 2000 years ago, when this country was as savage as New Zealand is at present, no such good medical aid can be obtained among the people of it, as a smart boy of 16, who had been but 12 months apprentice to a good and well employed Edinburgh surgeon, might reasonably be expected to afford." This gives us a melancholy picture of the state of medicine in China, which, however, is confirmed by the united testimony of Sir George Staunton and Mr Barrow.

The people of China are said to be in the possession of a method for ascertaining whether a man has been murdered, or committed an act of suicide, of the probability of which our readers will be able to judge from the following process. The body to be examined is washed with vinegar. A large fire is kindled in a pit dug for the purpose, six feet long, three wide, and the same in depth. The fire receives new accession of fuel till the pit acquires the temperature of a heated oven, when the whole of the remaining fuel is taken out, and a large quantity of wine is poured into the pit. The body is then placed at full length on osier twigs over the mouth of it, and covered with a cloth for two hours, that the steam of the wine may act upon the body in all directions. The Chinese, it is

China of China there are bells for marking the hours and watches of the night. They generally divide the night into five watches, beginning at seven or eight in the evening. On the commencement of the first they give one stroke, which is repeated a moment after; and thus they continue for two hours till the beginning of the second: they then give two strokes, which are repeated at equal intervals till the beginning of the third watch; and thus they proceed to the fourth and fifth, always increasing the number of the strokes. For the same purpose also they use enormous drums, which they beat in a similar manner. F. Magaillans mentions one at Peking upwards of 40 feet in circumference.

The instrument called *huien*, which is made of baked earth, is highly esteemed by the Chinese on account of its antiquity. It is distinguished into two kinds, the great and small; the former being of the size of a goose's egg; the latter of that of a hen's. It has six holes for the notes, and a seventh for the mouth.

The *kin* and *tche* have been known from the remotest antiquity. The *kin* has seven strings made of silk, and is distinguished into three kinds, differing only in size. - The body is formed of a kind of wood varnished black, and its whole length is about five feet five inches. The *tche* is about nine feet in length, has 25 strings, and is divided into 25 kinds. F. Amiot assures us, that we have no instrument in Europe which deserves to be preferred to it.

The instruments which emit the sound of wood are the *tchou*, the *yu*, and the *tchoung-ton*. The first is shaped like a bushel, and is beat on the inside with a hammer; the second, which represents a tyger squatting, is made to sound by scraping its back gently with a rod; the third is a collection of twelve pieces of boards tied together, which are used for beating time, by holding them in the right hand, and knocking them gently against the palm of the left.

Many instruments are constructed of the bamboo. These consist of pipes joined together, or separate, and pierced with more or fewer holes. The principal of all these wind instruments is the *cheng*, which emits the sound of a gourd. This is formed by cutting off the neck of a gourd, and reserving only the lower part. To this a cover is fitted, having as many holes as are equal to the number of sounds required. In each of these holes a pipe made of bamboo is fixed, and shorter or longer according to the tone intended. The mouth of the instrument is formed of another pipe shaped like the neck of a goose; which is fixed to the gourd on one side; and serves to convey the air to all the pipes it contains. The ancient *cheng* varied in the number of their pipes; those used at present have only 13.

The painting of the Chinese is undoubtedly inferior to that of the Europeans, though we are not by any means to judge of the abilities of the painters of this empire by the performances which are brought to Europe. M. Grosier remarks, that the works of the eminent Chinese painters are never brought to Canton, because they cannot find purchasers among the European merchants. The latter delight only in obscene pictures, which are not permitted by government, nor indeed will any artist of character execute them, though they prevail upon some of the inferior daubers to gratify them in this respect. It seems, however,

to be universally agreed, that the Chinese have no notion of correctness or perspective, and little knowledge of the proportions of the human body, though it cannot be denied that they excel in painting flowers and animals. In these they pride themselves in a scrupulously exact imitation of nature, insomuch that it is no uncommon thing to hear a painter ask his pupil how many scales there are between the head and tail of a carp.

Painting was formerly much esteemed in China, but has now fallen into disrepute on account of its political inutility. The cabinets and galleries of the emperor, however, are filled with European paintings, and the celebrated artists Castiglioni and Attiret were both employed; but their offer of erecting a school of painting was rejected, lest they should by this means revive the taste for that art which it had been formerly thought prudent to suppress.

Painting in fresco was known in China long before the Christian era; and, like the Grecians, the Chinese boast much of their celebrated painters of antiquity. Thus we are told of a door painted by Fan-hien, which was so perfect an imitation, that the people who entered the temple where it was, attempted to go out by it, unless prevented by those who had seen it before. The present emperor has in his park an European village painted in fresco, which produced the most agreeable deception. The remaining part of the wall represents a landscape and little hills, which are so happily blended with the distant mountains, that nothing can be conceived more agreeable. This was the production of Chinese painters, and executed from designs sketched out for them.

After this account of the state of painting in China, chiefly on the authority of M. Grosier, we beg leave to remark, upon the authority of more recent, and seemingly more competent as well as more inquisitive observers, that painting in China is at a low ebb, which made a certain artist once exclaim, "These Chinese are fit for nothing but weighing silver, and eating rice." They can copy with tolerable exactness what is laid before them, but so deficient are they in respect to a judicious alternation of light and shade; and therefore without discovering a single symptom of taste, beauties and defects are alike slavishly imitated. Their supposed excellence in drawing flowers, birds, and insects to the life, is most remarkable in the city of Canton; from which Mr Barrow conjectures that they acquire their eminence by copying the productions of Europe, occasionally sent over to be transferred to the porcelain designed for exportation.

Engraving in three, four, or five colours, is very ancient among the Chinese, and was known in this empire long before its discovery in Europe.

Sculpture is very little known in this empire; nor is there a single statue in any of the squares or public edifices of Peking, not even in the emperor's palace. The only real statues to be met with in the empire are those which, for the sake of ceremonious distinction, are used to ornament the avenues leading to the tombs of princes and men of great rank; or those that are placed near the emperor's coffin, and that of his sons and daughters, in the interior part of the vault, where their remains are deposited.

The Chinese architecture is entirely different from that of Europe.

China.
Root
||
Chione.

disorders. With this view it was made use of for some time; but has long since given place to more powerful medicines.

CHINA-Ware. See PORCELAIN.

CHINCA, a sea-port town in Peru in South America, situated in an extensive valley of the same name, in W. Long. 76. 0. S. Lat. 13. 0.

CHINCOUGH, a convulsive kind of cough to which children are generally subject. See MEDICINE Index.

CHINESE, in general, denotes any thing belonging to China or its inhabitants.

CHINESE Swanpan. See ABACUS.

CHINKAPIN. See FAGUS, BOTANY Index.

CHINNOR, a musical instrument among the Hebrews, consisting of 32 chords. Kircher has given a figure of it, which is copied on Plate CXLV.

CHINON, an ancient town of Tourrain in France, remarkable for the death of Henry II. king of England, and for the birth of the famous Rabelais. It is seated on the river Vienne, in the department of Indre and Loire. E. Long. 0. 18. N. Lat. 47. 2.

CHIO, or CHIOS, an Asiatic island lying near the coast of Natolia, opposite to the peninsula of Ionia. It was known to the ancients by the name of Ethalia, Macris, Pithyusa, &c. as well as that of Chios. According to Herodotus, the island of Chios was peopled originally from Ionia. It was at first governed by kings: but afterwards the government assumed a republican form, which by the direction of Isocrates was modelled after that of Athens. They were, however, soon enslaved by tyrants, and afterwards conquered by Cyrus king of Persia. They joined the other Grecians in the Ionian revolt; but were shamefully abandoned by the Samians, Lesbians, and others of their allies: so that they were again reduced under the yoke of the Persians, who treated them with the utmost severity. They continued subject to them till the battle of Mycale, when they were restored to their ancient liberty: this they enjoyed till the downfall of the Persian empire, when they became subject to the Macedonian princes. In the time of the emperor Vespasian the island was reduced to the form of a Roman province; but the inhabitants were allowed to live according to their own laws under the superintendence of a *prætor*. It is now subject to the Turks, and is called Scio. See that article.

CHICOCCA. See BOTANY Index.

CHIONANTHUS, the SNOW-DROP or FRINGE-TREE. See BOTANY Index.

CHIONE, in fabulous history, was daughter of Dædalion, of whom Apollo and Mercury became enamoured. To enjoy her company, Mercury lulled her to sleep with his caduceus; and Apollo, in the night under the form of an old woman, obtained the same favours as Mercury. From this embrace Chione became mother of Philammon and Autolycus; the former of whom, as being son of Apollo, became an excellent musician; and the latter was equally notorious for his robberies, of which his father Mercury was the patron. Chione grew so proud of her commerce with the gods, that she even preferred her beauty to that of Juno; for which impiety she was killed by the goddess and changed into a hawk.—Another of the same name was daughter of Boreas and

Orithia, who had Eumolpus by Neptune. She threw her son into the sea; but he was preserved by his father.

CHIOS. See CHIO and Scio.

CHIOURLIC, an ancient town of Turkey in Europe, and in Romania, with a see of a Greek bishop. It is seated on a river of the same name, in E. Long. 7. 47. N. Lat. 41. 18.

CHIOZZO, an ancient and handsome town of Italy in the Venetian territories of Austria, and in a small island, near the Lagunes, with a podesta, a bishop's see, and a harbour defended by a fort. E. Long. 12. 23. N. Lat. 45. 17.

CHIPPENHAM, a town of Wiltshire, seated on the river Avon, containing 3410 inhabitants in 1811. It has handsome stone bridge over the river, consisting of 21 arches; and sends two members to parliament. There is here a manufacture of the best superfine woollen cloth in England. W. Long. 2. 12. N. Lat. 51. 25.

CHIPPING, a phrase used by the potters and china men to express that common accident both of our own stone and earthen ware, and the porcelain of China, the flying off of small pieces, or breaking at the edges. Our earthen wares are particularly subject to this, and are always spoiled by it before any other flaw appears in them. Our stone wares escape it better than these; but not so well as the porcelain of China, which is less subject to it than any other manufacture in the world. The method by which the Chinese defend their ware from this accident, is this: They carefully burn some small bamboo canes to a sort of charcoal, which is very light, and very black; this they reduce to a fine powder, and then mix it into a thin paste, with some of the varnish which they use for their ware; they next take the vessels when dried, and not yet baked, to the wheel; and turning them softly round, they, with a pencil dipped in this paste, cover the whole circumference with a thin coat of it; after this, the vessel is again dried; and the border made with this paste appears of a pale grayish colour when it is thoroughly dry. They work on it afterwards in the common way, covering both this edge and the rest of the vessel with the common varnish. When the whole is baked on, the colour given by the ashes disappears, and the edges are as white as any other part; only when the baking has not been sufficient, or the edges have not been covered with the second varnishing, we sometimes find a dusky edge, as in some of the ordinary thick tea-cups. It may be a great advantage to our English manufacturers to attempt something of this kind. The willow is known to make a very light and black charcoal: but the elder, though a thing seldom used, greatly exceeds it. The young green shoots of this shrub, which are almost all pith, make the lightest and the blackest of all charcoal; this readily mixes with any liquid, and might be easily used in the same way that the Chinese use the charcoal of the bamboo cane, which is a light hollow vegetable, more resembling the elder shoots than any other English plant. It is no wonder that the fixed salt and oil contained in this charcoal should be able to penetrate the yet raw edges of the ware, and to give them in the subsequent baking a somewhat different degree of vitrification from the other parts of the vessel; which, though, if given to the whole, it

Chiron ties on the *diseases incident to horses* and other quadrupeds, *τεκνάρχος*; the lexicographer even pretends, Chiton. that it is from this work the Centaur derived his name. Fabricius gives a list of the works attributed to Chiron, and discusses the claims which have been made for others to the same writings: and in vol. xiii. he gives him a distinguished place in his catalogue of ancient physicians.

CHIRONIA. See BOTANY Index.

CHIRONOMY, in antiquity, the art of representing any past transaction by the gestures of the body, more especially by the motions of the hands: this made a part of liberal education; it had the approbation of Socrates, and was ranked by Plato among the political virtues.

CHIROTONY, among ecclesiastical writers, denotes the imposition of hands used in conferring priestly orders. However, it is proper to remark, that chirotony originally was a method of electing magistrates, by holding up the hands.

CHIRURGEON, or SURGEON. See SURGEON.

CHIRURGERY. See SURGERY.

CHISLEY-LAND, in *Agriculture*, a soil of a middle nature between sandy and clayey land, with a large admixture of pebbles.

CHISON, KISON, or KISSON, (*Judges iv. and v.*) a river of Galilee; said to rise in Mount Tabor, to run by the town of Naim, and to fall into the Mediterranean between Mount Carmel and Ptolemais, (*1 Kings xviii. 40.*).

CHISSEL, or CHISEL, an instrument much used in sculpture, masonry, joinery, carpentry, &c.

These are chisels of different kinds; though their chief difference lies in their different size and strength, as being all made of steel well sharpened and tempered: but they have different names, according to the different uses to which they are applied. The chisels used in carpentry and joinery are, 1. The former; which is used first of all before the parting chisel, and just after the work is scribed. 2. The paring chisel; which has a fine smooth edge, and is used to pare off or smooth the irregularities which the former makes. This is not struck with a mallet as the former is, but is pressed with the shoulder of the workman. 3. Skew-former: this is used for cleansing acute angles with the point or corner of its narrow edge. 4. The mortise-chisel; which is narrow, but very thick and strong, to endure hard blows, and it is cut to a very broad basil. Its use is to cut deep square holes in the wood for mortises. 5. The gouge, which is a chisel with a round edge; one side whereof serves to prepare the way for an augre, and the other to cut such wood as is to be rounded, hollowed, &c. 6. Socket-chisels, which are chiefly used by carpenters, &c. have their shank made with a hollow socket at top; to receive a strong wooden sprig, fitted into it with a shoulder. These chisels are distinguished, according to the breadth of the blade, into half-inch chisels, three quarters of an inch chisels, &c. 7. Ripping chisels; which is a socket-chisel of an inch broad, having a blunt edge, with no basil to it. Its use is to rip or tear two pieces of wood asunder, by forcing in the blunt edge between them.

CHITON, in *Zoology*, a genus of the order of vermes testaceæ. The name *chiton* is from *χιτών*, *lorica*,

a coat of mail. The shell is plated, and consists of many parts lying upon each other transversely: the inhabitant is a species of the DORIS. See CONCHOLOGY Index.

CHITTIM, in *Ancient Geography*, according to Le Clerc, Calmet, and others, was the same with Macedonia, peopled by Kittim the son of Javan and grandson of Noah.

CHITTRICK'S MEDICINE FOR THE STONE. This medicine was some years ago kept as a secret, and had great reputation as a lithotriptic, which indeed it seems in many cases to deserve. It was discovered by Dr Blackrie to be no more than soap-lye; and the following receipt for using it was procured by General Dunbar: "Take one tea-spoonful of the strongest soap-lye, mixed in two table-spoonfuls of sweet milk, an hour before breakfast, and at going to bed. Before you take the medicine, take a sup of pure milk, and immediately after you have swallowed the medicine take another. If you find this agrees with you for two or three days, you may add half as much more to the dose."

CHIVALRY, (from *cheval*, "a horse"); an abstract term, used to express the peculiar privileges, obligations, and turn of mind, with all the other distinguishing characteristics of that order of men who flourished in Europe in the dark ages, during the vigour of the feudal systems of government, under the name of *Knights* or *Knights Errant*.

To ascertain the period at which the order sprung up, and the circumstances to which its origin was owing, is no easy task. In the history of society, such a multiplicity of collateral facts appear interwoven together, and causes and effects run into each other by a gradation so imperceptible, that it is exceedingly difficult, even for the nicest eye, to discern causes from their immediate effects, or to distinguish to which among a number of collateral circumstances the origin of any particular event is to be referred. The age to which we must look for the origin of chivalry was singularly rude and illiterate. Even the principal events of that period, emigrations, wars, and the establishment of systems of laws and forms of government, have been but imperfectly, and in many instances unfaithfully, recorded. But the transactions which took place in the ordinary course of civil and domestic life, and which, though less striking, must have always prepared the way for the more remarkable events, have been generally thought unworthy of transmission to posterity, and have very seldom found a historian. Add to these difficulties which oppose our researches on this subject, that the nations of Europe were in that age a mixed multitude, consisting of the aboriginal inhabitants, who, though either subdued by the Roman arms, or at least compelled to retire to the woods and mountains, still obstinately retained their primitive manners and customs; Roman colonies, and such of the original inhabitants of the countries in which these were established, as had yielded not only to the arms of the Romans, but also to the influence of their laws, arts, and manners; and the barbarians, who proceeding from the northern regions of Asia and Europe, the wilds of Scythia and Germany, dissolved the fabric of the Roman empire, and made themselves lords of Europe. Amid this confusion of nations, institutions, and

Chivalry, tasy, were imputed to the heroic ages. Achilles was at once the most relentless, vindictive, implacable, and the friendliest of men. We have the very same representation in the Gothic romances. As in those lawless times, dangers and distresses of all kinds abounded, there would be the same demand for compassion, gentleness, and generous attachment to the unfortunate, those especially of their own clan, as of resentment, rage, and animosity against their enemies.

7. Again, the martial games celebrated in ancient Greece, on great and solemn occasions, had the same origin and the same purpose as the tournaments of the Gothic warriors.

8. Lastly, the passion for adventures so natural in their situation, would be as naturally attended with the love of praise and glory. Hence the same encouragement, in the old Greek and Gothic times, to panegyrists and poets. In the affairs of religion and gallantry, indeed, the resemblance between the hero and the knight is not so striking. But the religious character of the knight was an accident of the times, and no proper effect of his civil condition. And that his devotion for the fair sex should so far surpass that of the hero, is a confirmation of the system here advanced. For the consideration had of the females in the feudal constitution, will of itself account for this deference. It made them capable of succeeding to fiefs, as well as the men. And does not one instantly perceive what respect and dependence this privilege would draw upon them?

It was of great consequence who should obtain the favour of a rich heiress. And though, in the strict feudal times, she was supposed to be in the power and at the disposal of her superior lord, yet this rigid state of things did not last long. Hence we find some distressed damsel was the spring and mover of every knight's adventure. She was to be rescued by his arms, or won by the fame and admiration of his prowess. The plain meaning of all which was this: That as, in these turbulent times, a protector was necessary to the weakness of the sex, so the courteous and valorous knight was to approve himself fully qualified for that purpose.

It may be observed, that the two poems of Homer were intended to expose the mischiefs and inconveniences arising from the political state of Old Greece; the *Iliad*, the dissensions that naturally spring up among independent chiefs; and the *Odyssey*, the insolence of their greater subjects, more especially when unrestrained by the presence of their sovereign. And can any thing more exactly resemble the condition of the feudal times, when, on occasion of any great enterprise, as that of the crusades, the designs of the confederate Christian states were perpetually frustrated, or interrupted at least, by the dissensions of their leaders; and their affairs at home, as perpetually disordered by the rebellious usurpations of their greater vassals? Jerusalem was to the European what Troy had been to the Grecian princes. See the article KNIGHT. See also CHIVALRY, SUPPLEMENT.

CHIVALRY, in *Law*, is used for a tenure of lands by knight's service, whereby the knight was bound to perform service in war unto the king, or the meane lord of whom he held by that tenure. And chivalry was either general or special: *general*, when it was

only in the feoffment that the tenant held *per servitium Chivalrie militare*, without any specification of sergantry, escuage, &c.; *special*, when it was declared particularly by what kind of knight service the land was held.

For the better understanding of this tenure it hath been observed, that there is no land but is holden mediate or immediately of the crown by some service; and therefore all freeholds that are to us and our heirs, are called *feuda* or *feoda*, " fees;" as proceeding from the king for some small yearly rent, and the performance of such services as were originally laid upon the land at the donation thereof. For as the king gave to the great nobles, his immediate tenants, large possessions for ever, to hold of him for this or that service or rent; so they in time parcelled out to such others as they liked the same lands for rents and services as they thought good; and these services were by Littleton divided into two kinds, *chivalry* and *socage*; the first whereof was martial and military, the other rustic. Chivalry, therefore, was a tenure of service, whereby the tenant was obliged to perform some noble or military office unto his lord: and it was of two kinds; either *regal*, that is, held only of the king; or *common*, where held of a common person. That which might be held only of the king was called *servitium* or *sergentia*; and was again divided into *grand* and *petit* serjeantry. The grand serjeantry was where one held lands of the king by service, which he ought to do in his own person: as, to bear the king's banner or spear, to lead his host, to find men at arms to fight, &c. Petit serjeantry was when a man held lands of the king, to yield him annually some small thing towards his wars, as a sword, dagger, bow, &c. Chivalry that might be holden of a common person was termed *scutagium*, "escuage;" that is, service of the shield; which was either uncertain or certain.

Escuage uncertain, was likewise two-fold: first, where the tenant was bound to follow his lord, going in person to the king's wars, either himself, or sending a sufficient man in his place, there to be maintained at his expence, so long as was agreed upon between the lord and his first tenant at the granting of the fee; and the days of such service seem to have been rated by the quantity of land so holden; as, if it extended to a whole knight's fee, then the tenant was to follow his lord 40 days; and if but to half a knight's fee, then 20 days: if a fourth part, then ten days, &c. The other kind of this escuage was called *castle ward*, where the tenant was obliged, by himself, or some other, to defend a castle as often as it should come to his turn. And these were called *escuage uncertain*; because it was uncertain how often a man should be called to follow his lord to the wars, or to defend a castle, and what his charge would be therein.

Escuage certain, was where the tenure was set at a certain sum of money to be paid in lieu of such service; as that a man should pay yearly for every knight's fee 20s. for half a knight's fee 10s. or some like rate; and this service, because it is drawn to a certain rent, groweth to be of a mixed nature, not merely socage, and yet socage in effect, being now neither personal service nor uncertain. The tenure called chivalry had other conditions annexed to it: but there is a great alteration made in these things by the stat. 12 Car. II. c. 24, whereby tenures by knight's service of the king,

or

Chiun
Vinum
Chocolate.

thalmic medicines. Hence Scribonius Largus directs the dry ingredients in collyria for the eyes to be made up with Chiun wine.

CHIUN, or CHEVAN, in Hebrew antiquity. We meet with this word in the prophet Amos, cited in the Acts of the Apostles. St Luke reads the passage thus : " Ye took up the tabernacle of Moloch, and the star of your god Remphan, figures which ye made to worship them." The import of the Hebrew is as follows : " Ye have borne the tabernacle of your kings, and the pedestal (the chiun) of your images, the star of your gods, which ye made to yourselves." The Septuagint in all probability read *Repham* or *Revan*, instead of *Chiun* or *Chevan*, and took the pedestal for a god.

Some say that the Septuagint, who made their translation in Egypt, changed the word *Chiun* into that of *Remphan*, because they had the same signification. M. Basnage, in his book entitled *Jewish Antiquities*, after having discoursed a good deal upon *Chiun*, or *Remphan*, concludes that Moloch was the sun, and *Chiun*, *Chiun*, or *Remphan*, the moon.

CHLAMYS, in antiquity, a military habit worn by the ancients over the tunica. It belonged to the patricians, and was the same in the time of war that the toga was in the time of peace. This sort of gown was called *picta*, from the rich embroidery with figures in Phrygian work ; and *purpurea*, because the ground-work was purple. The chlamydes of the emperors were all purple, adorned with a golden and embroidered border.

CHLOEIA, in antiquity, a festival celebrated at Athens in honour of Ceres, to whom, under the name Χλοε, i. e. grass, they sacrificed a ram.

CHLORA. See BOTANY Index.

CHLOROSIS, in Medicine, a disease, commonly called the green sickness, incident to young girls. See MEDICINE Index.

CHOCOLATE, in commerce, a kind of paste or cake prepared of certain ingredients, the basis of which is cacao. See CACAO.

The Indians, in their first making of chocolate, used to roast the cacao in earthen pots ; and having afterwards cleared it of the husks, and bruised it between two stones, they made it into cakes with their hands. The Spaniards improved this method. When the cacao is properly roasted and well cleaned, they pound it in a mortar, to reduce it into a coarse mass, which they afterwards grind on a stone till it be of the utmost fineness : the paste being sufficiently ground, is put quite hot into tin moulds, in which it congeals in a very little time. The form of these moulds is arbitrary ; the cylindrical ones, holding two or three pounds, are the most proper, because the bigger the cakes are, the longer they will keep. Observe, that these cakes are very liable to take any good or bad scent, and therefore they must be carefully wrapt up in paper, and kept in a dry place. Complaints are made, that the Spaniards mix with the cacao nuts too great a quantity of cloves and cinnamon, besides other drugs without number, as musk, ambergris, &c. The grocers of Paris use few or none of these ingredients ; they only choose the best nuts, which are called *caraque*, from the place from whence they are brought ; and

with these they mix a very small quantity of cinnamon, Chocolate the freshest vanilla, and the finest sugar, but very seldom any cloves. In England the chocolate is made of the simple cacao, excepting that sometimes sugar Choeribus and sometimes vanilla is added.

Chocolate ready made, and cacao paste, are prohibited to be imported from any part beyond the seas. If made and sold in Great Britain, it pays inland duty 1s. 6d. per lb. avoirdupoise : it must be inclosed in papers containing one pound each, and produced at the excise office to be stamped. Upon three days notice given to the officer of excise, private families may make chocolate for their own use, provided no less than half an hundred weight of nuts be made at one time.

The chocolate made in Portugal and Spain is not near so well prepared as the English, depending perhaps on the machine employed there, viz. the double cylinder, which seems very well calculated for exact triture. If perfectly prepared, no oil appears on the solution. London chocolate gives up no oil like the foreign ; and it also may in some measure depend on the thickness of the preparation. The solution requires more care than is commonly imagined. It is proper to break it down, and dissolve it thoroughly in cold water by milling it with the chocolate stick. If heat is applied, it should be done slowly ; for, if suddenly the heat will not only coagulate it, but separate the oil ; and therefore much boiling after it is dissolved is hurtful. Chocolate is commonly required by people of weak stomachs ; but often rejected for want of proper preparation. When properly prepared, it is easily dissolved ; and an excellent food where a liquid nutrient vegetable one is required, and is less flatulent than any of the farinacea.

Mr Hesly, an ingenious electrician, has lately discovered that chocolate, fresh from the mill, as it cools in the tin pans into which it is received, becomes strongly electrical ; and that it retains this property for some time after it has been turned out of the pans, but soon loses it by handling. The power may be once or twice renewed by melting it again in an iron ladle, and pouring it into the tin pans as at first ; but when it becomes dry and powdery, the power is not capable of being revived by simple melting : but if a small quantity of olive-oil be added, and well mixed with the chocolate in the ladle, its electricity will be completely restored by cooling it in the tin-pan as before. From this experiment he conjectures, that there is a great affinity between carbonic acid and the electric fluid, if indeed they be not the same thing.

CHOCOLATE Nut-tree. See CACAO.

CHOENIX, χωνιξ, an ancient dry measure, containing the 48th part of a *medimnus*, or six bushels.

CHOERILUS, a tragic poet of Athens about the 64th Olympiad. He wrote 150 tragedies, of which 13 had obtained the prize.—An historian of Samos.—Two other poets, one of whom was very intimate with Herodotus. He wrote a poem on the victory which the Athenians had obtained over Xerxes ; and on account of the excellence of the composition he received a piece of gold for each verse from the Athenians. The other was one of Alexander's flatterers and friends.

CHOERINÆ,

Chords.

the name of *perfect* to all chords, even to dissonances, whose fundamental sounds are below. Imperfect *chords* are those in which the sixth, instead of the fifth, prevails, and in general all those whose lowest are not their fundamental sounds. These denominations, which had been given before the fundamental bass was known, are now most unhappily applied: those of chords *direct* and *reversed* are much more suitable in the same sense.

Chords are once more divided into consonances and dissonances. The chords denominated *consonances*, are the perfect chord, and its derivatives; every other chord is a *dissonance*.

A table of both, according to the system of M. Rameau, may be seen in Rousseau's Musical Dictionary, vol. i. p. 27.

After the table to which our readers have been remitted, Rousseau adds the following observations, which are at the same time so just and so important, that we should be very sorry if they escape the reader's attention.

At the words *harmony*, *fundamental bass*, *composition*, &c. he promises to treat concerning the manner of using all the chords to form regular harmony; and only adds, in this place, the subsequent reflections.

1. It is a capital error to imagine, that the methods of inverting the same chord are in all cases equally eligible for the harmony and for the expression. There is not one of these different arrangements but had its proper character. Every one feels the contrast between the softness of the false fifth, and the grating sound of the tritone, though the one of these intervals is produced by a method of inverting the other. With the seventh diminished, and the second redundant, the case is the same with the interval of the second in general use, and the seventh. Who does not feel how much more vocal and sonorous the fifth appears when compared with the fourth? The *chord* of the great sixth, and that of the lesser sixth minor, are two forms of the same fundamental *chord*: but how much less is the one harmonious than the other? On the contrary, the *chord* of the lesser sixth major is much more pleasing and cheerful than that of the false fifth. And only to mention the most simple of all *chords*, reflect on the majesty of the perfect chord, the sweetness of that which is called the *chord* of the sixth, and the insipidity of that which is composed of a sixth and a fourth: all of them, however, composed of the same sounds. In general, the redundant intervals, the sharps on the higher part, are proper by their severity to express violent emotions of mind, such as anger and the rougher passions. On the contrary, flats in the higher parts, and diminished intervals, form a plaintive harmony, which melts the heart. There are a multitude of similar observations, of which, when a musician knows how to avail himself, he may command at will the affections of those who hear him.

2. The choice of simple intervals is scarcely of less importance than that of the *chords*, with regard to the stations in which they ought to be placed. It is, for instance, in the lower parts that the fifth and octave should be used in preference; in the upper parts, the third and sixth are more proper. If you transpose

this order, the harmony will be ruined, even though the *Chord* same *chords* are preserved.

3. In a word, the *chords* are rendered still more harmonious by being approximated and only divided by the smallest practicable intervals, which are more suitable to the capacity of the ear than such as are remote. This is what we call *contracting* the harmony; an art which few composers have skill and abilities enough to put in practice. The limits in the natural compass of voices, afford an additional reason for lessening the distance of the intervals, which compose the harmony of the chorus, as much as possible. We may affirm, that a chorus is improperly composed, when the distance between the *chords* increases; when those who perform the different parts are obliged to scream when the voices rise above their natural extent, and are so remotely distant one from the other, that the perception of harmonical relations between them is lost.

We say likewise, that an instrument is in *concord* when the intervals between its fixed sounds are what they ought to be; we say in this sense, that the *chords* of an instrument are true or false, that it preserves or does not preserve its *chords*. The same form of speaking is used for two voices which sing together, or for two sounds which are heard at the same time, whether in unison or in parts.

CHORDS, or *CORDS* of *Musical Instruments*, are strings, by the vibration of which the sensation of sound is excited, and by the divisions of which the several degrees of tone are determined.

CHORDEE, in *Medicine* and *Surgery*, a symptom attending a gonorrhœa, consisting in a violent pain under the frenum, and along the duct of the urethra, during the erection of the penis, which is incurvated downwards. These erections are frequent and involuntary.

CHOREA SANCTI VITI. See *Virus's Dance*, *MEDICINE Index*.

CHOREPISCOPUS, an officer in the ancient church, about whose function the learned are much divided. The word comes from *χρηστός*, a *region*, or *little country*, and *επίσκοπος*, a *bishop* or *overseer*.

The *Chorepiscopi* were suffragan or local bishops, holding a middle rank between bishops and presbyters, and delegated to exercise episcopal jurisdiction within certain districts, when the boundaries of particular churches, over which separate bishops presided, were considerably enlarged. It is not certain when this office was first introduced; some trace it to the close of the first century: others tell us, that *chorepiscopi* were not known in the east till the beginning of the fourth century; and in the west about the year 439. They ceased both in the east and west in the tenth century.

CHOREPISCOPUS is also the name of a dignity still subsisting in some cathedrals, particularly in Germany; signifying the same with *chori episcopus*, or "bishop of the choir." The word, in this sense, does not come from *χρηστός*, *place*, but *χορός*, *choir*, &c. In the church of Cologne, &c. the first chanter is called *chorepiscopus*.

CHOREUS, *χορεύς*, a foot in the ancient poetry, more commonly called *trochaeus*. See *TROCHEE*.

CHORIAMBUS, in ancient poetry, a foot consisting

Chous person is first advanced to it, he is called a *kuchak*, or little *chous*; after this he is advanced to be the *ally chous*, that is, the messenger of ceremonies; and from this, having passed through the office of *petetma*, or procurator of the effects of the body, he is advanced to be the *bas chous*.

CHOWDER-BEER, a provincial phrase of Devonshire, denoting a cheap and easily prepared drink, highly commended for preventing the scurvy in long voyages, or for the cure of it where it may have been contracted. It is prepared in the following manner: Take twelve gallons of water, in which put three pounds and a half of black spruce: boil it for three hours, and having taken out the fir or spruce, mix with the liquor seven pounds of molasses, and just boil it up; strain it through a sieve, and when milk-warm put to it about four spoonfuls of yeast to work it. In two or three days stop the bung of the cask: and in five or six days, when fine, bottle it for drinking. Two gallons of molasses are sufficient for a hogshead of liquor; but if molasses cannot be procured, treacle or coarse sugar will answer the purpose.

CHREMNITZ, the principal of the nine towns in Upper Hungary, situated about 68 miles north-east of Presburg, and subject to the house of Austria. E. Long. 19. N. Lat. 48. 45.

CHRENECRUDA, a term occurring in writers of the middle ages, and expressing a custom of those times; but its signification is doubtful. It is mentioned in *Lege Salica*, tit. 61. which says, he who kills a man, and hath not wherewithal to satisfy the law or pay the fine, makes oath that he hath delivered up every thing he was possessed of; the truth of which must be confirmed by the oaths of 12 other persons. Then he invites his next relations by the father's side to pay off the remainder of the fine, having first made over to them all his effects by the following ceremony. He goes into his house, and taking in his hand a small quantity of dust from each of the four corners, he returns to the door, and with his face inwards throws the dust with his left hand over his shoulders upon his nearest of kin. Which done, he strips to his shirt; and coming out with a pole in his hand, jumps over the hedge. His relations, whether one or several, are upon this obliged to pay off the composition for the murder. And if these (or any one of them) are not able to pay *iterum super illum chrenecruda, qui pauperior est, jactat, et ille totam legem componat*. Whence it appears, that *chrenecruda jactare*, is the same with throwing the dust gathered from the four corners of the house. Goldastus and Spelman translate it *viridem herbam*, "green grass," from the German *gruen kraut*, or from the Dutch *groen*, "green," and *gruid*, "grass." Wendelinus is of a contrary opinion, who thinks that by this word *denotari purificationis approbationem*, from *chrein*, "pure, chaste, clean;" and *keuren*, "to prove;" so that it must refer to the oaths of the twelve jurors. Be this as it will, King Childebert reformed this law by a decree, chap. 15. both because it savoured of Pagan ceremonies, and because several persons were thereby obliged to make over all their effects: *De chrenecruda lex quam paganorum tempore observabant, deinceps nunquam valeat, quia per ipsam cecidet multorum potestas.*

CHRISM (from *χριστός*, *I anoint*), oil consecrated by

the bishop, and used in the Romish and Greek churches, in the administration of baptism, confirmation, ordination, and extreme unction, which is prepared on holy Thursday with much ceremony. In Spain it was anciently the custom for the bishop to take one-third of a sol for the chrism distributed to each church, on account of the balsam that entered its composition.

Du Cange observes, that there are two kinds of chrism; the one prepared of oil and balsam, used in baptism, confirmation, and ordination; the other of oil alone, consecrated by the bishop, used anciently for the catechumens, and still in extreme unction. The Maronites, before their reconciliation with Rome, besides oil and balsam, used musk, saffron, cinnamon, roses, white frankincense, and several other drugs mentioned by Rynaldus, in 1541, with the doses of each. The Jesuit Dandini, who went to Mount Libanus in quality of the pope's nuncio, ordained, in a synod held there in 1596, that chrism for the future should be made only of two ingredients, oil and balsam; the one representing the human nature of Jesus Christ, the other his divine nature. The action of imposing the chrism is called *chrismation*: this the generality of the Romish divines hold to be the next matter of the sacrament of confirmation.

The chrismation in baptism is performed by the priest; that in confirmation by the bishop; that in ordination, &c. is more usually styled *unction*.

CHRISM Pence, *CHRISMALES Denarii*, or *CHRISMALES Denarii*, a tribute anciently paid to the bishop by the parish clergy, for their chrism, consecrated at Easter for the ensuing year: this was afterwards condemned as simoniacal.

CHRISOM, a white garment put upon a child by the priest immediately after baptism, accompanied with this devout prayer; "Take this white vesture as a token of the innocency which, by God's grace in this holy sacrament of baptism is given unto thee, and for a sign whereby thou art admonished, so long as thou livest, to give thyself to innocence of living, that after this transitory life thou mayest be partaker of life everlasting. Amen."

From this circumstance the white garment got the name of *chrism*, which, after being worn a few days, was delivered to the priest as a sacred deposit, to be produced in future as an evidence against the person, should he be so impious as to renounce his baptismal engagements. This ceremony continued in use for a considerable time after the reformation in the church of England, which required the mother of the child, when churched, to offer the chrism and other customary oblations. On pronouncing the above mentioned prayer, the priest anointed the head of the infant, saying, "Almighty God, the father of our Lord Jesus Christ, who hath regenerated thee by water and the Holy Ghost, and hath given unto thee the remission of all thy sins, vouchsafe to anoint thee with the unction of his Holy Spirit, and bring thee to the inheritance of everlasting life. Amen."

CHRIST, an appellation synonymous with *Messiah*, usually added to Jesus: and, together therewith, denominating the Saviour of the world. See CHRISTIANITY and MESSIAH.

The word *χριστός* signifies *anointed*, from *χριστός*, *inungo*, "I anoint." Sometimes the word *Christ* is used singly,

Christia-
nity.

which cannot be broken but by an absolute subversion of all historical authenticity. Nor is this all : for, according to him, the facts on which Christianity is founded, not only constitute a series of themselves, but are likewise in several periods the best resources for supplying the chasms in the history of our nature, and preserving the tenor of its annals entire. The facts themselves are either natural or supernatural. By natural facts we mean such occurrences as happen or may happen from the various operations of mechanical powers, or from the interposition of natural agents without higher assistants. Such are all the common occurrences of history, whether natural, biographical, or civil. By supernatural facts, we mean such as could not have been produced without the interposition of Deity, or at least of powers superior to the laws of mechanism or the agency of embodied spirits. Among these may be reckoned the immediate change of water into wine, the instantaneous cure of diseases without the intervention of medicine, the resuscitation of the dead, and others of the same kind. In this order of occurrences may likewise be numbered the exertions and exhibitions of prophetic power, where the persons by whom these extraordinary talents were displayed could neither by penetration nor conjecture unravel the mazes of futurity, and trace the events of which they spoke from their primary causes to their remote completions. So that they must have been the passive organs of some superior Being, to whom the whole concatenation of causes and effects which operate from the origin to the consummation of nature, was obvious at a glance of thought.

⁷
Natural
facts, what
and how
conducive
to the elu-
cidation of
history.

It has already been hinted, that the facts which we have called *natural*, not only agree with the analogy of human events, and corroborate each other, but in a great many emergencies nobly illustrate the history of nature in general. For this a Christian might offer one instance, of which philosophy will not perhaps be able to produce any tolerable solution, without having recourse to the facts upon which Christianity is founded. For if mankind were originally descended from one pair alone, how should it have happened that long before the date of authentic history every nation had its own distinct language? Or, if it be supposed, as some late philosophers have maintained, that man is an indigenous animal in every country; or, that he was originally produced in, and created for, each particular soil and climate which he inhabits; still it may be demanded, whence the prodigious multiplicity, the immense diversity of languages? Is the language of every nation intuitive, or were they dictated by exigences, and established by convention? If the last of these suppositions be true, what an immense period of time must have passed! How many revolutions of material and intellectual nature must have happened! What accessions of knowledge, refinement, civilization, must human intercourse have gained before the formation and establishment even of the most simple, imperfect, and barbarous language! Why is a period so vast obliterated so entirely as to escape the retrospect of history, or tradition, and even of fable itself? Why was the acquisition and improvement of other arts so infinitely distant from that of language, that the era of the latter is entirely lost, whilst we can trace the for-

mer from their origin through the various gradations of Christi-
nity.

These difficulties, inextricable by all the lights of history or philosophy, this more than Cimmerian darkness,⁸ is immediately dissipated by the Mosaic account of the confusion of tongues ; wisely intended to separate the tribes of men one from another, to replenish the surface of the globe, and to give its multiplied inhabitants those opportunities of improvement which might be derived from experiment and industry, variously exerted, according to the different situations in which they were placed, and the different employments which these situations dictated. Thus the time of nature's existence is limited to a period within the ken of human intellect. Thus whatever has happened might have happened during the present mode of things ; whereas, if we deduce the origin and diversity of language from a period so remotely distant as to be absolutely lost, and entirely detached from all the known occurrences and vicissitudes of time, we must admit the present forms and arrangements of things to have subsisted perhaps for a much longer duration than any mechanical philosopher will allow to be possible. Other instances equally pregnant with conviction might be multiplied ; but precluded by the limits of our plan, we proceed to a single observation upon the facts which have been termed *supernatural*.

Of those changes which happen in sensible objects, ^{Miracle} sensation alone can be judge. Reason has nothing to do in the matter. She may draw conclusions from the testimonies of sense, but can never refute them. If, therefore, our senses inform us that snow is white, ^{truth of} Christi-
in vain would the most learned and subtle philosopher endeavour to convince us, that it was of a contrary colour. He might confound, but never could persuade us. Such changes, therefore, as appear to happen in sensible objects, must either be real or fallacious. If real, the miracle is admitted ; if fallacious, there must be a cause of deception equally unaccountable from the powers of nature, and therefore equally miraculous. If the veracity or competency of the witnesses be questioned, the Christian answers, that they must be competent, because the facts which they relate are not beyond their capacity to determine. They must likewise be faithful, because they had no secular motives for maintaining, but many for suppressing or disguising, what they testified. Now the Christian appeals to the whole series of history and experience, whether such a man is or can be found, as will offer a voluntary, solemn, and deliberate sacrifice of truth at the shrine of caprice. But such facts as after a long continuance of time have been found exactly agreeable to predictions formerly emitted, must su-^{Prophe} its own
persevere the fidelity of testimony, and infallibly prove ^{ture in} that the event was known to the Being by whom it ^{pende} was foretold. In vain it has been urged, that prophe-^{ties} cies are ambiguous and equivocal. For though they may prefigure subordinate events, yet if the grand occurrences to which they ultimately relate, can alone fulfil them in their various circumstances, and in their utmost extent, it is plain, that the Being by whom they were revealed must have been actually prescient of those events, and must have had them in view when the predictions were uttered. For this see a learned and

^{Christia-}
^{nity.}
violate the freedom of moral agents, in recalling them to the paths of virtue and happiness by a mechanical and irresistible force.

¹⁶
Minc-
les as pos-
sible, and
perhaps as
necessary,
natural
events.

It will be granted to philosophy by the Christian, that as no theory of mechanical nature can be formed without presupposing sacred and established laws, from which she ought rarely if ever to deviate, so in fact she tenaciously pursues these general institutions, and from their constant observance result the order and regularity of things. But he cannot admit, that the important ends of moral and intellectual improvement may be uniformly obtained by the same means. He affirms, that if the hand of God should either remain always entirely invisible, or at least only perceptible in the operation of second causes, intelligent beings would be apt in the course of time to resolve the interposition of Deity into the general laws of mechanism; to forget his connexion with nature, and consequently their dependence upon him. Hence, according to the dictates of common sense, and to the unanimous voice of every religion in every age or clime, for the purposes of wisdom and benevolence, God may not only controul, but has actually controuled, the common course and general operations of nature. So that, as in the material world the law of cause and effect is generally and scrupulously observed for the purposes of natural subsistence and accommodation: thus suspense and changes of that universal law are equally necessary for the advancement of moral and intellectual perfection.

¹⁷
Christiani-
ty not only
explains
the pheno-
mena, but
consoles
the mis-
eries of hu-
man na-
ture.

But the disciple of Jesus not only contends, that no system of religion has ever yet been exhibited so consistent with itself, so congruous to philosophy and the common sense of mankind, as Christianity; he likewise avers that it is infinitely more productive of real and sensible consolation than any other religious or philosophical tenets, which have ever entered into the soul, or been applied to the heart of man. For what is death to that mind which considers eternity as the career of its existence? What are the frowns of fortune to him who claims an eternal world as his inheritance? What is the loss of friends to that heart which feels, with more than natural conviction, that it shall quickly rejoin them in a more tender, intimate, and permanent intercourse than any of which the present life is susceptible? What are the fluctuations and vicissitudes of external things to a mind which strongly and uniformly anticipates a state of endless and immutable felicity? What are mortifications, disappointments, and insults, to a spirit which is conscious of being the original offspring and adopted child of God; which knows that its omnipotent Father will, in proper time, effectually assert the dignity and privileges of its nature? In a word, as earth is but a speck of creation, as time is not an instant in proportion to eternity, such are the hopes and prospects of the Christian in comparison of every sublunary misfortune or difficulty. It is therefore, in his judgment, the eternal wonder of angels, and indelible opprobrium of man, that a religion so worthy of God, so suitable to the frame and circumstances of our nature, so consonant to all the dictates of reason, so friendly to the dignity and improvement of intelligent beings, pregnant with genuine comfort and delight, should be rejected and despised. Were there a possibility of suspense or hesi-

tation between this and any other religion extant, he Christia-
could freely trust the determination of a question so nity.
important to the candid decision of real virtue and im-
partial philosophy.

It must be allowed that the utmost extent of human investigation and research into the doctrine of a future life, reached no farther than splendid conjecture before the promulgation of Christianity, at which period life and immortality were clearly brought to light. It is therefore a singular circumstance that the deist should not perceive the wonderful superiority of the Christian over every other system, if it had nothing else to boast of but this single doctrine, so pregnant with unalloyed felicity. If Christianity be false, the believer of it has nothing to lose, since it inculcates a mode of conduct which must ever be amiable in the eye of infinite goodness; but if it be true, he has every thing to gain: while upon this hypothesis the deist has every thing to lose and nothing to gain. This is a momentous consideration, and that man must be truly insatuated who can treat such an idea with contempt.

¹⁸
Mr Gib-
bon at-
tempts to
prove, that
and all the remarkable circumstances which attended the propa-
gation of Christianity, were in-
duced in a sin-
gle or extraordi-
nary manner in disseminating the religion of Jesus through the world; and that, if every ses from
other argument which has been adduced to prove the opera-
sacred authority of this religion can be parried or re-
futed, nothing can be deduced from this source to pre-
vent it from sharing the same fate with other systems can be de-
fended in arguments
which no
of superstition. The causes of its propagation were in-
duced in his opinion founded on the principles of human nature proof of its
and the circumstances of society. If we ascribe not authenti-
city to the propagation of Mahometism, or of the doctrines
of Zerdust, to an extraordinary interposition of Divine
Providence, operating by an unperceived influence on
the dispositions of the human heart, and controuling
and confounding the ordinary laws of nature; neither
can we, upon any reasonable grounds, refer the promul-
gation of Christianity to such an interposition.

¹⁹
The sec-
ondary causes to which he ascribes these effects are, 1. The inflexible and intolerant zeal of the Christians; derived from the Jewish religion, but purified from the narrow and unsocial spirit which, instead of inviting, deterred the Gentiles from embracing the law of Moses. 2. The doctrine of a future life, improved by every additional circumstance which could give weight and efficacy to that important truth. 3. The miraculous powers ascribed to the primitive church. 4. The pure and austere morals of the Christians. 5. The union and discipline of the Christian republic, which gradually formed an independent and increasing state in the heart of the Roman empire.

Before we enter on the examination of Mr Gibbon's causes in the order in which they are here enumerated, we beg leave to remark, that we cannot perceive the propriety of denominating some of these secondary causes, since the miraculous powers ascribed to the primitive church, if they were real, must have constituted a primary cause, and if fallacious, could have been no cause at all, if not of its complete subversion. As little can we conceive how such an elegant and learned author

²⁰
Cause I.
Christia-
nity

author could imagine a zeal strictly and properly inflexible and intolerant, as qualified to produce any other effect than the destruction of the system which they are allowed to have been anxious to promote. But our sentiment of these causes assigned by Mr Gibbon will be more fully developed as we proceed in our candid and impartial examination of them.

In pointing out the connexion between the *first* of these causes and the effects which he represents as arising from it, this learned and ingenious writer observes, that the religion of the Jews does not seem to have been intended to be propagated among the Heathens, and that the conversion of proselytes was rather accidental than consistent with the purport of the general spirit of the institutions of Judaism. The Jews were, of consequence, studious to preserve themselves a peculiar people. Their zeal for their own religion was intolerant, narrow, and unsocial.

In Christianity, when it made its appearance in the world, all the better part of the predominant spirit of Judaism was retained; but whatever might have a tendency to confine its influence within narrow limits was laid aside. Christians were to maintain the doctrines and adhere to the constitutions of their religion with sacred fidelity. They were not to violate their allegiance to Jesus by entertaining or professing any reverence for Jupiter or any other of the Heathen deities; it was not even necessary for them to comply with the positive and ceremonial institutions of the law of Moses,—although these were acknowledged to have been of divine origin. The zeal, therefore, which their religion inculcated, was inflexible. It was even intolerant: for they were not to content themselves with professing Christianity and conforming to its laws; they were to labour with unremitting assiduity, and to expose themselves to every difficulty and every danger, in converting others to the same faith.

But the same circumstances which rendered it thus intolerant, communicated to it a more liberal and a less unsocial spirit than that of Judaism. The religion of the Jews was intended only for the few tribes; Christianity was to become a catholic religion; its advantages were to be offered to all mankind.

All the different sects which arose among the primitive Christians uniformly maintained the same zeal for the propagation of their own religion, and the same abhorrence for every other. The orthodox, the Ebionites, the Gnostics, were all equally animated with the same exclusive zeal, and the same abhorrence of idolatry, which had distinguished the Jews from other nations.

²¹
Observa-
tions in an-
swer.

Such is the general purport of what Mr Gibbon advances concerning the influence of the *first* of those secondary causes in the propagation of Christianity. It would be uncandid to deny, that his statement of facts appears to be, in this instance, almost fair, and his deductions tolerably logical. The first Christians were remarkable for their detestation of idolatry, and for the generous disinterested zeal with which they laboured to convert others to the same faith. The first of these principles, no doubt, contributed to maintain the dignity and purity of Christianity; and the second to disseminate it through the world. But the facts which he relates are scarce consistent throughout. He seems to represent the zeal of the first Christians as so

hot and intolerant, that they could have no social intercourse with those who still adhered to the worship of Heathen deities. In this case, how could they propagate their religion? Nay, we may even ask, How could they live? If they could not mingle with the Heathens in the transactions either of peace or war; nor witness the marriage or the funeral of the dearest friend, if a heathen; nor practise the elegant arts of music, painting, eloquence, or poetry; nor venture to use freely in conversation the language of Greece or of Rome;—it is not easy to see what opportunities they could have of disseminating their religious sentiments. If, in such circumstances, and observing rigidly such a tenor of conduct, they were yet able to propagate their religion with such amazing success as they are said to have done; they must surely either have practised some wondrous arts unknown to us, or have been assisted by the supernatural operation of divine power.

But all the historical records of that period, whether sacred or profane, concur to prove, that the primitive Christians in general did not retire with such religious horror from all intercourse with the Heathens. They refused not to serve in the armies of the Roman empire: they appealed to Heathen magistrates, and submitted respectfully to their decision; the husband was often a Heathen, and the wife a Christian; or, again, the husband a Christian, and the wife a Heathen. These are facts so universally known and believed, that we need not quote authorities in proof of them.

This respectable writer appears therefore not to have stated the facts which he produces under this head with sufficient ingenuousness; and he has taken care to exaggerate and improve those which he thinks useful to his purpose with all the dazzling and delusive colours of eloquence. But had the zeal of the first Christians been so intolerant as he represents it, it must have been highly unfavourable to the propagation of their religion: all their wishes to make converts would, in that case, have been counteracted by their unwillingness to mix in the ordinary intercourse of life, with those who were to be converted. Their zeal and the liberal spirit of their religion, were indeed secondary causes which contributed to its propagation: but their zeal was by no means so ridiculously intolerant as this writer would have us believe; if it had, it must have produced effects directly opposite to those which he ascribes to it.

²²
Cause
In illus-
trating the influence of the *second* of these secondary causes to which he ascribes the propagation of Christianity, Mr Gibbon displays no less ingenuity than in tracing the nature and the effects of the *first*. The doctrine of a future life, improved by every additional circumstance which can give weight and efficacy to that important truth, makes a conspicuous figure in the Christian system; and it is a doctrine highly flattering to the natural hopes and wishes of the human heart.

Though the Heathen philosophers were not unacquainted with this doctrine; yet to them the spirituality of the human soul, its capacity of existence in a separate state from the body, its immortality, and its prospect of lasting happiness in a future life, rather appeared things possible and desirable, than truths fully established upon solid grounds. These doctrines, Mr Gibbon would persuade us, had no influence on

Christia-
nity.

the influence of the society of which they were become members : all together operated so powerfully as to enable them to display both active and passive virtue in a very extraordinary degree. Their virtues did not flow from the purest and noblest source ; yet they attracted the notice and moved the admiration of mankind. Of those who admired, some were eager to imitate ; and, in order to that, thought it necessary to adopt the same principles of action.

Their virtues, too, were rather of that species which excite wonder, because uncommon, and not of essential utility in the ordinary intercourse of society ; than of those which are indispensably necessary to the existence of social order, and contribute to the ease and convenience of life. Such virtues were well calculated to engage the imitation of those who had failed egregiously in the practice of the more social virtues.

Thus they practised extraordinary, but useless and unsocial virtues, upon no very generous motives ; those virtues drew upon them the eyes of the world, and induced numbers to embrace their faith.

²⁷
Observe-
tions in an-
swer.

We must, however unwillingly, declare that this is plainly an uncandid account of the virtues of the primitive Christians, and the motives from which they originated. The social virtues are strongly recommended through the gospel. No degree of mortification or self-denial, or seclusion from the ordinary business and amusements of social life, was required of the early converts to Christianity ; save what was indispensably necessary to wean them from the irregular habits in which they had before indulged, and which had rendered them nuisances in society, and to form them to new habits equally necessary to their happiness and their usefulness in life. We allow that they practised virtues which in other circumstances would, however splendid, have been unnecessary. But in the difficult circumstances in which the first Christians were placed, the virtues which they practised were in the highest degree social. The most prominent feature in their character was, "their continuing to entertain sentiments of generous benevolence, and to discharge scrupulously all the social duties," towards those who exercised neither charity nor humanity, and frequently not even bare integrity and justice, in their conduct towards them.

It cannot be said with truth, that such a proportion of the primitive Christians were people whose characters had been infamous and their circumstances desperate, as that the character of the religion which they embraced can suffer from this circumstance. Nor were they *only* the weak and illiterate whom the apostles and their immediate successors converted by their preaching. The criminal, to be sure, rejoiced to hear that he might obtain absolution of his crimes ; the mourner was willing to receive comfort ; minds of refined and generous feelings were deeply affected with that goodness which had induced the Son of God to submit to the punishment due to sinners : but the simplicity, the rationality, and the beauty of the Christian system, likewise prevailed in numerous instances over the pride and prejudices of the great and the wise : in so many instances, as are sufficient to vindicate the Christian church from the aspersions by which it has been represented as being in the first period of its existence merely a body of *criminals and idiots*.

The principles, too, from which the virtues of the first Christians originated, were not peculiarly mean and selfish ; nay, they seem to have been uncommonly sublime and disinterested. Remorse in the guilty mind, is a natural and reasonable sentiment ; the desire of happiness in every human breast is equally so. It is uncandid to cavil against the first Christians for being, like the rest of mankind, influenced by these sentiments : And when we behold them overlooking temporary possessions and enjoyments, extending their views to futurity, and "living by faith;" when we observe them "doing good to those who hated them, blessing those who cursed them, and praying for those by whom they were spitefully used :" can we deny their virtues to have been of the most generous and disinterested kind.

We allow then that the virtues of the first Christians must have contributed to the propagation of their religion : but it is with pain that we observe this respectable writer studiously labouring to misrepresent the principles from which those virtues arose ; and not only the principles from which they arose, but also their importance in society.

The *fifth cause* was the mode of church government ^{Cause V.} adopted by the first Christians, by which they were ²⁸ knit together in one society ; who preferred the church and its interests to their country and civil concerns. We wish not to deny, that the mutual attachment of the primitive Christians contributed to spread the influence of their religion ; and the order which they maintained, in consequence of being animated with this spirit of brotherly love, and with such ardent zeal for the glory of God, must no doubt have produced no less happy effects among them than order and regularity produce on every other occasion on which they are strictly observed. But whether the form of church-government, which was gradually established in the Christian church, was actually the happiest that could possibly have been adopted ; or whether, by establishing a distinct society, with separate interests, within the Roman empire, it contributed to the dissolution of that mighty fabric, we cannot here pretend to inquire. These are subjects of discussion, with respect to which we may with more propriety endeavour to satisfy our readers elsewhere.

From the whole of this review of what Mr Gibbon General has so speciously advanced concerning the influence of ^{conclu-} these five secondary causes in the propagation of the ^{concern-} gospel, we think ourselves warranted to conclude, ^{ing the in-} That the zeal of the first Christians was not, as he re- ^{fluence of} presents it, intolerant : That the doctrine of the im-^{causes.} mortality of the human soul was somewhat better un-²⁹ derstood in the Heathen world, particularly among the Greeks and Romans, and the Jews, than he represents it to have been ; and had an influence somewhat hap-^{ier} than what he ascribes to it : That the additional circumstances by which, he tells us, the first preachers of Christianity improved the effects of this doctrine, were far from being calculated to allure converts : That the heathens, therefore, were not quite so well prepared for an eager reception of this doctrine as he would persuade us they were ; and, of consequence, could not be influenced by it in so considerable a de-^{gree} in their conversion : That real, unquestionable mir-^{acles}, performed by our Saviour, by his apostles, and by

Christians, that part of the world. The emperor advises them to "take care, lest, in torturing and punishing those whom they accused of Atheism (meaning the Christians), they should render them more obstinate, instead of prevailing upon them to change their opinion; since their religion taught them to suffer with pleasure for the sake of God." As to the earthquakes which had happened, he put them in mind, "that they themselves are always discouraged, and sink under such misfortunes; whereas the Christians never discovered more cheerfulness and confidence in God than upon such occasion." He tells them, that "they pay no regard to religion, and neglect the worship of the Eternal; and, because the Christians honour and adore Him, therefore they are jealous of them, and persecute them even to death." He concludes: "Many of the governors of provinces have formerly written to my father concerning them; and his answer always was, that they should not be molested or disturbed, provided they quietly submitted to the authority of the government. Many persons have likewise consulted me upon this affair, and I have returned the same answer to them all; namely, that if any one accuses a Christian merely on account of his religion, the accused person shall be acquitted, and the accuser himself punished." This ordinance, according to Eusebius, was publicly fixed up at Ephesus in an assembly of the states.

It is no difficult matter to discover the causes of the many persecutions to which the Christians were exposed during the three first centuries. The purity of the Christian morality, directly opposite to the corruption of the Pagans, was doubtless one of the most powerful motives of the public aversion. To this may be added, the many calumnies unjustly spread about concerning them by their enemies, particularly the Jews. And this occasioned so strong a prejudice against them, that the Pagans condemned them without inquiring into their doctrine, or permitting them to defend themselves. Besides, their worshipping Jesus Christ as God, was contrary to one of the most ancient laws of the Roman empire, which expressly forbade the acknowledging of any God which had not been approved by the senate.

But notwithstanding the violent opposition made to the establishment of the Christian religion, it gained ground daily, and very soon made a surprising progress in the Roman empire. In the third century, there were Christians in the camp, in the senate, in the palace: in short everywhere, but in the temples and the theatres: they filled the towns, the country, the islands. Men and women of all ages and conditions, and even those of the first dignities, embraced the faith; insomuch that the Pagans complained that the revenues of their temples were ruined. They were in such great numbers in the empire, that (as Tertullian expresses it) were they to have retired into another country, they would have left the Romans only a frightful solitude.

The primitive Christians were not only remarkable for the practice of every virtue; they were also very eminently distinguished by the many miraculous gifts and graces bestowed by God upon them. "Some of the Christians (says Ireneus) drive out devils, not in appearance only, but so as that they never return:

whence it often happens, that those who are possessed of evil spirits embrace the faith and are received into the church. Others know what is to come, see visions, and deliver oracles as prophets. Others heal the sick by laying their hands on them, and restore them to perfect health: and we find some who even raise the dead.—It is impossible to reckon up the gifts and graces which the church has received from God—what they have freely received they as freely bestow. They obtain these gifts by prayer alone, and invocation of the name of Jesus Christ, without any mixture of enchantment or superstition."

We shall here subjoin the remarkable story, attested by Pagan authors themselves, concerning the *Christian Legion* in the army of the emperor Marcus Aurelius. That prince having led his forces against the Quadi, a people on the other side of the Danube, was surrounded and hemmed in by the enemy in a disadvantageous place, and where they could find no water. The Romans were greatly embarrassed, and, being pressed by the enemy, were obliged to continue under arms, exposed to the violent heat of the sun, and almost dead with thirst; when, on a sudden, the clouds gathered, and the rain fell in great abundance. The soldiers received the water in their bucklers and helmets, and satisfied both their own thirst and that of their horses. The enemy, presently after, attacked them; and so great was the advantage they had over them, that the Romans must have been overthrown, had not Heaven again interposed by a violent storm of hail, mixed with lightning, which fell on the enemy, and obliged them to retreat. It was found afterwards, that one of the legions, which consisted of Christians, had by their prayers, which they offered upon their knees before the battle, obtained this favour from heaven: and from this event that legion was surnamed *The Thundering Legion*. See, however, the criticism of Mr Moyle on this story in his *Works*, vol. ii. p. 81—390. See also Mosheim's *Church History*, vol. i. p. 124.

Such were the primitive Christians, whose religion has by degrees spread itself over all parts of the world, though not with equal purity in all. And though, by the providence of God, Mahometans and Idolaters have been suffered to possess themselves of those places in Greece, Asia, and Africa, where the Christian religion formerly most flourished; yet there are still such remains of the Christian religion among them as to give them opportunity sufficient to be converted. For, in the dominions of the Turk in Europe, the Christians make two third parts at least of the inhabitants; and in Constantinople itself there are above twenty Christian churches, and above thirty in Thessalonica. Philadelphia, now called *Ala-shahir*, has no fewer than twelve Christian churches. The whole island of Chio is governed by Christians; and some islands of the Archipelago are inhabited by Christians only. In Africa, besides the Christians living in Egypt, and in the kingdom of Congo and Angola, the islands upon the western coasts are inhabited by Christians; and the vast kingdom of Abyssinia, supposed to be as big as Germany, France, Spain, and Italy, put together, is possessed by Christians. In Asia, most part of the empire of Russia, the countries of Circassia and Mingrelia, Georgia, and Mount Libanus, are inhabited

Christina. bitress of this treaty ; at least as to the affairs of Sweden, to which this peace confirmed the possession of many important countries. No public event of importance took place during the rest of Christina's reign ; for there were neither wars abroad, nor troubles at home. This quiet might be the effect of chance ; but it might also be the effect of a good administration, and the great reputation of the queen ; and the love her people had for her ought to lead us to this determination. Her reign was that of learning and genius. She drew about her, wherever she was, all the distinguished characters of her time : Grotius, Paschal, Bochart, Descartes, Gassendi, Sauvaise, Naude, Vossius, Heinsius, Meibom, Scudery, Menage, Lucas, Holstentius, Lambecius, Bayle, Madame Dacier, Filicaia, and many others. The arts never fail to immortalize the prince who protects them ; and almost all these illustrious persons have celebrated Christina, either in poems, letters, or literary productions of some other kind, the greater part of which are now forgotten. They form, however, a general cry of praise, and a mass of testimonials which may be considered as a solid basis of reputation. Christina, however, may be justly reproached with want of taste, in not properly assigning the rank of all these persons, whose merits, though acknowledged, were yet unequal ; particularly for not having been sufficiently sensible of the superiority of Descartes, whom she disgusted, and at last wholly neglected. The rapid fortune which the adventurer Michon, known by the name of Bourdelot, acquired by her countenance and liberality, was also a great scandal to literature. He had no pretensions to learning ; and though sprightly was yet indecent. He was brought to court by the learned Sauvaise ; and, for a time, drove literary merit out of it, making learning the object of his ridicule, and exacting from Christina an exorbitant tribute to the weakness and inconstancy of her sex ; for even Christina, with respect to this man, showed herself to be weak and inconstant. At last she was compelled, by the public indignation, to banish this unworthy minion : and he was no sooner gone than her regard for him was at an end. She was ashamed of the favour she had shown him ; and, in a short time, thought of him with hatred or contempt. This Bourdelot, during his ascendancy over the queen, had supplanted Count Magnus de la Gardie, son of the constable of Sweden, who was a relation, a favourite, and perhaps the lover of Christina. M. de Motville, who had seen him ambassador in France, says, in his memoirs, that he spoke of his queen in terms so passionate and respectful, that every one concluded his attachment to her to be more ardent and tender than a mere sense of duty can produce. This nobleman fell into disgrace because he showed an inclination to govern ; while M. Bourdelot seemed to aim at nothing more than to amuse ; and concealed, under the unsuspected character of a droll, the real ascendancy which he exercised over the queen's mind.

About this time, an accident happened to Christina which brought her into still greater danger than that which has been related already. Having given orders for some ships of war to be built at the port of Stockholm, she went to see them when they were finished ; and as she was going on board of them, cross

a narrow plank, with Admiral Fleming, his foot slipping, he fell, and drew the queen with him into the sea, which in that place was near 90 feet deep. Anthony Steinberg, the queen's first equerry, instantly threw himself into the water, laid hold of her robe, and, with such assistance as was given him, got the queen ashore : during this accident, her recollection was such, that the moment her lips were above water, she cried out, "Take care of the admiral." When she was got out of the water, she discovered no emotion either by her gesture or countenance ; and she dined the same day in public, where she gave a humorous account of her adventure.

But though at first she was fond of the power and splendour of royalty, yet she began at length to feel that it embarrassed her ; and the same love of independency and liberty which had determined her against marriage, at last made her weary of the crown. As, after her first disgust, it grew more and more irksome to her, she resolved to abdicate ; and, in 1652, communicated her resolution to the senate. The senate zealously remonstrated against it ; and was joined by the people ; and even by Charles Gustavus himself, who was to succeed her : she yielded to their importunities, and continued to sacrifice her own pleasure to the will of the public till the year 1654, and then she carried her design into execution. It appears by one of her letters to M. Canut, in whom she put great confidence, that she had meditated this project for more than eight years ; and that she had communicated it to him five years before it took place.

The ceremony of her abdication was a mournful solemnity, a mixture of pomp and sadness, in which scarce any eyes but her own were dry. She continued firm and composed through the whole ; and, as soon as it was over, prepared to remove into a country more favourable to science than Sweden was. Concerning the merit of this action, the world has always been divided in opinion ; it has been condemned alike both by the ignorant and the learned, the trifler and the sage. It was admired, however, by the great Conde : "How great was the magnanimity of this princess (said he), who could so easily give up that for which the rest of mankind are continually destroying each other, and which so many throughout their whole lives pursue without attaining!" It appears, by the works of St Evremond, that the abdication of Christina was at that time the universal topic of speculation and debate in France. Christina, besides abdicating her crown, abjured her religion : but this act was universally approved by one party and censured by another ; the Papists triumphed, and the Protestants were offended. No prince, after a long imprisonment, ever showed so much joy upon being restored to his kingdom, as Christina did in quitting hers. When she came to a little brook, which separates Sweden from Denmark, she got out of her carriage ; and leaping on the other side, cried out in a transport of joy, "At last I am free, and out of Sweden, whither, I hope, I shall never return." She dismissed her women, and laid by the habit of her sex : "I would become a man (said she) ; yet I do not love men because they are men, but because they are not women." She made her abjuration at Brussels ; where she saw the great Conde, who, after his

Christo-
pher's
II
Chromatic.

The air is good; the soil light, sandy, and fruitful; but the island is subject to hurricanes. The produce is chiefly sugar, cotton, ginger, indigo, and the tropical fruits. W. Long. 62. 32. N. Lat. 47. 30.

CHROASTACES, an old term in *Natural History*, applied to gems, and comprehending all those of variable colours, as viewed in different lights and in different positions; of which kinds are the *opal* and the *asteria* or cat's eye.

CHROMATIC, a kind of music which proceeds by several semitones in succession. The word is derived from the Greek *χρώμα*, which signifies colour. For this denomination several causes are assigned, of which none appear certain, and all equally unsatisfactory. Instead, therefore, of fixing upon any, we shall offer a conjecture of our own; which, however, we do not impose upon the reader as more worthy of his attention than any of the former. *χρώμα* may perhaps not only signify a colour, but that of a shade of a colour by which it melts into another, or what the French call *nuance*. If this interpretation be admitted, it will be highly applicable to semitones; which being the smallest interval allowed in the diatonic scale, will most easily run one into another. To find the reasons assigned by the ancients for this denomination, and their various divisions of the chromatic species, the reader may have recourse to the same article in Rousseau's *Musical Dictionary*. At present, that species consists in giving such a procedure to the fundamental bass, that the parts in the harmony, or at least some of them, may proceed by semitones, as well in rising as descending; which is most frequently found in the minor mode, from the alterations to which the sixth and seventh note are subjected, by the nature of the mode itself.

The successive semitones used in the *chromatic* species are rarely of the same kind; but alternately major and minor, that is to say, *chromatic* and *diatonic*: for the interval of a minor tone contains a minor or chromatic semitone, and another which is major or diatonic, a measure which temperament renders common to all tones: so that we cannot proceed by two minor semitones which are conjunctive in succession, without

entering into the enharmonic species; but two major chromatic semitones twice follow each other in the chromatic order of the scale.

The most certain procedure of the fundamental bass to generate the chromatic elements in ascent, is alternately to descend by thirds, and rise by fourths, whilst all the chords carry the third major. If the fundamental bass proceeds from dominant to dominant by perfect cadences avoided, it produces the *chromatic* in descending. To produce both at once, you interweave the perfect and broken cadences, but at the same time avoid them.

As at every note in the *chromatic* species one must change the tone, that succession ought to be regulated and limited for fear of deviation. For this purpose, it will be proper to recollect, that the space most suitable to *chromatic* movements, is between the extremes of the dominant and the tonic in ascending, and between the tonic and the dominant in descending. In the major mode, one may also chromatically descend from the dominant upon the second note. This transition is very common in Italy; and, notwithstanding its beauty, begins to be a little too common amongst us.

The chromatic species is admirably fitted to express grief and affliction; these sounds boldly struck in ascending tear the soul. Their power is no less magical in descending; it is then that the ear seems to be pierced with real groans. Attended with its proper harmony, this species appears proper to express every thing; but its completion, by concealing the melody, sacrifices a part of its expression; and for this disadvantage, arising from the fulness of the harmony, it can only be compensated by the nature and genius of the movement. We may add, that in proportion to the energy of this species, the composer ought to use it with greater caution and parsimony; like those elegant viands, which, when profusely administered, immediately surfeit us with their abundance; as much as they delight us when enjoyed with temperance, so much do they disgust when devoured with prodigality.

CHROMATIC, ENHARMONIC. See ENHARMONIC.

C H R O M A T I C S ;

THAT part of optics which explains the several properties of the colours of light, and of natural bodies.

¹ Before the time of Sir Isaac Newton, we find no hypothesis concerning colours of any consequence. The opinions of the old philosophers, however, we shall briefly mention, in order to gratify the curiosity of our readers. The Pythagoreans called colour the superficies of body. Plato said that it was a flame issuing from them. According to Zeno, it is the first configuration of matter; and Aristotle said, it was that which moved bodies actually transparent. Des Cartes asserted, that colour is a modification of light; but he imagined, that the difference of colour proceeds from the prevalence of the direct or rotatory motion of the particles of light. Father Grimaldi, Dechales, and

many others, thought the difference of colour depended upon the quick or slow vibrations of a certain elastic medium filling the whole universe. Rohault imagined that the different colours were made by the rays of light entering the ray at different angles with respect to the optic axis; and from the phenomena of the rainbow, he pretended to calculate the precise quantity of the angle that constituted each particular colour. Lastly, Dr Hooke, the rival of Newton, imagined that colour is caused by the sensation of the oblique or uneven pulse of light; and this being capable of no more than two varieties, he concluded there could be no more than two primary colours.

In the year 1666, Sir Isaac Newton began to investigate this subject; and finding the coloured image of the sun, formed by a glass prism, to be of an oblong, ² and Newton

CHROMATICS.

which we subjoin the following table, wherein on one side are mentioned the colours appearing on the plates by reflected light, and on the other those which were opposite to them, and which became visible when the glasses were held up between the eye and the window. We have already observed, that the centre, when the glasses were in full contact, was perfectly transparent. This spot, therefore, when viewed by reflected light, appeared black, because it transmitted all the rays; and for the same reason it appeared white when viewed by transmitted light.

<i>COLOURS by Reflected Light.</i>	<i>COLOURS by Transmitted Light.</i>
Black	White
Blue	Yellowish-red
White	Black
Yellow	Violet
Red	Blue
Violet	White
Blue	Yellow
Green	Red
Yellow	Violet
Red	Blue
Purple	Green
Blue	Yellow
Green	Red
Yellow	Bluish-green
Red	Red
Green	Bluish-green
Red	Red
Greenish-blue	
Red	

The colours of the rings produced from reflection by the thick plates, followed the order of those produced by transmission through the thin ones; and by the analogy of their phenomena with those produced from the thin plates, Sir Isaac Newton concluded that they were produced in a similar manner. For he found, that if the quicksilver was rubbed off from the back of the speculum, the glass alone would produce the same rings, but much more faint than before; so that the phenomenon did not depend upon the quicksilver, except in as far as, by increasing the reflection at the back of the glass, it increased the light of the coloured rings. He also found that a speculum of metal only, produced none of these rings; which made him conclude, that they did not arise from one surface only, but depended on the two surfaces of the plate of glass of which the speculum was made, and upon the thickness of the glass between them.

⁷
General theory of colours by Sir Isaac Newton.

From these experiments and observations, it will be easy to understand the Newtonian theory of colours. Every substance in nature seems to be transparent, provided it is made sufficiently thin. Gold, the most dense substance we know, when reduced into thin leaves, transmits a bluish-green light through it. If, therefore, we suppose any body, gold, for instance, to be divided into a vast number of plates, so thin as to be almost perfectly transparent, it is evident that all or greatest part of the rays will pass through the upper plates, and when they lose their force will be reflected from the under ones. They will then have the same number of plates to pass through which they had penetrated before; and thus, according to the

number of those plates through which they are obliged to pass, the object appears of this or that colour, just as the rings of colours appeared different in the experiment of the two plates, according to their distance from one another, or the thickness of the plate of air between them.

This theory is adopted by Edward Hussey Delaval, Mr Delaval's experiments in his Experimental Inquiry into the cause of the changes of colours in opaque and coloured bodies. ⁸ He endeavours to confirm it by a number of experiments on the infusions of flowers of different colours; but his strongest arguments seem to be those derived from the different tinges given to glass by metallic substances. Here he observes, that each metal gives a tinge according to its specific density: The more dense metals producing the less refrangible colours, and the lighter ones those colours which are more easily refrangible. Gold, which is the densest of all metals, imparts a red colour to glass, whenever it can be divided into particles so minute, that it is capable of being mixed with the materials of which glass is made. It seems indifferent by what means it is reduced to this state, nor can it by any means be made to produce another colour. If it is mixed in large masses without being minutely divided, it imparts no colour to the glass, but remains in its metallic form. Lead, the metal whose density is next in order to that of gold, affords a glass of the colour of the hyacinth; a gem whose distinguishing characteristic is, that it is red with an admixture of yellow, the same colour which is usually called orange. Glass of lead is mentioned by several authors as a composition proper, without the addition of any other ingredient, for imitating the hyacinth. Silver, next in density to lead, can only be made to communicate a yellow colour to glass. If the metal is calcined with sulphur, it readily communicates this colour. Leaf-silver laid upon red hot glass, likewise tinged it yellow. When we meet with authors who mention a blue or greenish colour communicated by silver, the cause must have been, that the silver used in such processes was mixed with copper. Mr Delaval assures us, from his own experience, that silver purified by the test retains so much copper, that, when melted several times with nitre and borax, it always imparted a green colour at the first and second melting: though afterwards no such colour was obtainable from it. The only colour produced by copper is green. It is indifferent in what manner the copper is prepared in order to tinge the glass, provided it is exposed without any other ingredient to a sufficient degree of heat. If a quantity of salts is added in the preparation, they will, by attenuating the mixture, make the glass incline to blue, the colour next in order: but this happens only when the fire is moderate; for, in a greater degree of heat, the redundant salts, even those of the most fixed nature, are expelled. It is true, that copper is mentioned by some writers as an ingredient in red glass and enamel: but the red, which is the colour of the metal not dissolved or mixed with the glass, remains only while the composition is exposed to such a degree of heat as is too small to melt and incorporate it; for if it be suffered to remain in the furnace a few minutes after the copper is added, the mass will turn out green instead of red. Iron, the metal next in density to copper, is apt to

C H R O M A T I C S.

surfaces are more or less united. These figures will not fail to appear, if the glasses are well wiped and warmed before the friction.

" When the colours are formed, the glasses adhere with considerable force, and would always continue so, without any change in the colours. In the centre of all those ovals, the longer diameter of which generally exceeds ten lines, there appears a small plate of the same figure, exactly like a plate of gold interposed between the glasses; and in the centre of it there is often a dark spot, which absorbs all the rays of light except the violet: for this colour appears very vivid through a prism.

" If the glasses are separated suddenly, either by sliding them horizontally over one another, or by the action of fire, as will be explained hereafter, the colours will appear immediately upon their being put together again, without the least friction.

" Beginning by the slightest touch, and increasing the pressure by insensible degrees, there first appears an oval plate of a faint red, and in the midst of it a spot of light green, which enlarges by the pressure, and becomes a green oval, with a red spot in the centre; and this, enlarging in its turn, discovers a green spot in its centre. Thus the red and the green succeed one another in turns, assuming different shades, and having other colours mixed with them, which will be distinguished presently.

" The greatest difference between these colours exhibited between plane surfaces and those formed by curve ones is, that in the former case pressure alone will not produce them, except in the case above mentioned. With whatever force he compressed them, his attempts to produce the colours were in vain without previous friction. But the reason of this plainly was, that with sliding one of the glasses over the other, they could not be brought to approach near enough for the purpose.

" Having made these observations with plates of glass whose sides were nearly parallel, he got two prisms with very small refracting angles; and rubbing them together, when they were joined so as to form a parallelopiped, the colours appeared with a surprising lustre at the places of contact, owing, he did not doubt, to the separation of the rays of light by the prism. In this case, differently coloured ovals appeared, but the plate of gold in them was much whiter, and only appeared yellow about its edges. The plate having a black spot in its centre, was bordered by a deep purple. He could not perceive any violet by his naked eye, but it might be perceived by the help of a lens with a weak light. It appeared in a very small quantity at the confines of the purple and the blue, and seemed to him to be only a mixture of these two colours. It was very visible in each of the coloured rings by inclining the glasses to the light of the moon. Next to the purple and violet appeared blue, orange, red tinged with purple, light green, and faint purple. The other rings appeared to the naked eye to consist of nothing but faint reds and greens; and they were so shaded that it was not easy to mark their terminations. That the order of these may be compared with Newton's, he gives a view of both in the following table:

	<i>Order of the Colours in the Plane Glasses.</i>	<i>Order of the Colours in the Newt. Object Glasses.</i>
Order I.	{ Black spot Whitish oval Yellow border Deep purple	Black Blue White Yellow Red Violet
Order II.	{ Blue Orange Purple	Blue Green Yellow
Order III.	{ Greenish blue Yellow green Purple red	Red Purple Blue Green Yellow Red Green
Order IV.	{ Green Red	Red Green
Order V.	{ Faint green Faint red	Red
Order VI.	{ Weak green Light red	Greenish blue
Order VII.	{ Very faint green Very faint red	Red Greenish blue Pale red

" When these coloured glasses were suspended over the flame of a candle, the colours disappeared suddenly, though the glasses still continued to adhere to one another, when they were parallel to the horizon. When they were suffered to cool, the colours returned by degrees to their former places, in the order of the preceding table.

" After this the Abbé took two plates much thicker than the former, in order to observe at his leisure the action of fire upon the matter which he supposed to produce the colours; and observed, that as they grew warm, the colours retired to the edges of the glasses, and there became narrower and narrower till they were reduced to imperceptible lines. Withdrawing the flame, they returned to their place. This experiment he continued till the glasses were bent by the violence of the heat. It was pleasant, he says, to observe these colours glide over the surface of the glass as they were pursued by the flame.

" At the first our author had no doubt but that these colours were owing to a thin plate of air between the glasses, to which Newton has ascribed them: but the remarkable difference in the circumstances attending those produced by the flat-pieces, and those produced by the object-glasses of Newton, convinced him that the air was not the cause of this appearance. The colours of the flat plates vanished at the approach of flame, but those of the object-glasses did not. He even heated the latter till that which was next the flame was cracked by the heat, before he could observe the least dilatation of the coloured rings. This difference was not owing to the plane glasses being less compressed than the convex ones; for though the former were compressed ever so much by a pair of forceps, it did not in the least hinder the effect of the flame.

" Afterwards he put both the plane glasses and the convex ones into the receiver of an air pump, suspending the former by a thread, and keeping the latter compressed

C H R O M A T I C S.

suddenly, he observed upon their surface very thin vapours, which formed different colours, but presently vanished altogether.

" To try the effect of vapour, he breathed upon one of his plates of glass, and observed that the vapours which adhered to the glasses sometimes formed, before they were entirely dispersed, a surprising variety of colours. This experiment, he observes, does not always succeed at the first trial. The glass must be breathed upon several times, and care must be taken to wipe it every time with one's hand, both to take off the moisture, and also to make upon the glass a kind of furrows, which contribute very much to the variety of colours, by making inequalities in the thicknesses of the vapours. It is necessary also, that the glasses on which these experiments are made have no quicksilver upon them.

" When the particles of water which formed this vapour were too thick to exhibit these colours, he struck them several times with his pencil, in order to attenuate them; and then he saw an infinity of small coloured threads which succeeded one another with great rapidity.

" Putting a drop of water between two pieces of common glass, he observed that the compression of them produced no colour; but if, while they were compressed, the water was made to pass from one place to another, it left behind it large spots, red, yellow, green, purple, &c. and the spots assumed different colours with a surprising rapidity, and presented to the eye a most beautiful variety of shades.

" In order to determine with greater certainty whether they were vapours that caused the colours in his first observations, he first breathed upon one of his plates of glass, and then rubbed them against one another, when the colours appeared in the same order as before, but darker, and dispersed in confusion in the places occupied by the vapours: but when he made use of fire, to dissipate the watery particles, the colours resumed their lustre.

" Newton, having introduced a drop of water between his two object-glasses, observed, that in proportion as the water insinuated itself between the glasses, the colours grew fainter, and the rings were contracted: and ascribing these colours to the thickness of the plate of water, as he ascribed the former to that of the plate of air, he measured the diameters of the coloured rings made by the plate of water, and concluded that the intervals between the glasses at the similar rings of these two mediums were nearly as three to four; and thence he inferred, that in all cases, these intervals would be as the sines of the refractions of these mediums.

" The Abbé Mazeas, in order to assure himself whether, agreeable to this rule, the coloured rings of his glasses depended upon the thickness of the water only, dipped one of the edges of his coloured glasses in a vessel of water, having taken care to wipe and warm them well, before he produced his colours by friction. The water was a considerable time in rising as high as the glasses; and in proportion as it ascended, he perceived a very thin plate of water, which seemed to pass over the matter which he thought produced the colours, without mixing with it; for beyond this plate of water, he still perceived the col-

lours in the same place and order, but deeper and darker; and holding the glasses above the flame of a candle, he saw the colours go and come several times as he moved them nearer to or farther from the flame. He then moistened both the glasses more than before; and rubbing them as usual, he always saw the same appearance; and seizing the moment when the colours had disappeared to separate the glasses, he always found that they were wet. On this account, he thought that it could not be the water on which the colour depended, but some substance much more sensible to heat. He also thought that these coloured rings could not be owing to the compression of the glasses; or that, if this circumstance did contribute any thing to them, it served rather to modify than to generate them.

" M. du Tour gave particular attention to the preceding observations of the Abbé Mazeas. He repeated the experiments with some variation of circumstances, particularly comparing them with those of Sir Isaac Newton. He is so far from supposing a plate of air to be necessary to the formation of these coloured rings, that he thinks the reason of their not appearing between the flat plates of glass is the adhesion of the air to their surfaces; and that mere pressure is not sufficient to expel it; except, as the Abbé Mazeas observed, the rings had before been made in the same place; in which case, simple apposition without friction is sufficient; the air, probably, not having had time to apply itself so closely to the surface of the glass. The contact of some other substances, M. du Tour observes, is not so prejudicial in this experiment as that of air; for he found, that, if he only gave the plates a slight coating of any kind of grease, the rings would appear without friction. Also dipping them slightly in water, or wiping them with his finger, would answer the same purpose. He verified his conjectures by means of the air-pump; for, dipping two pieces of glass in water, one of which had been wiped, and the other not, the former appeared to have no bubbles adhering to it when the air was exhausted, whereas the other had.

" When one of the glasses is convex, our author observes, that the particles of air may more easily make their escape by pressure only; whereas their retreat is in a manner cut off when they are compressed between two flat surfaces. The air-pump, he found, was not able to detach these particles of air from the surfaces to which they adhere; leaving these flat plates for a considerable time in an exhausted receiver, was not sufficient to prepare them so well for the experiment as wiping them.

" Besides the observations on the colours of thin plates, it has been seen that Sir Isaac Newton imagined he could account for the colours exhibited by thick ones in some cases in a similar manner; particularly in those curious experiments in which he admitted a beam of light through a hole in a piece of pasteboard, and observed the rings of colours reflected back upon it by a concave glass mirror of equal thickness in all places. These experiments were resumed, and happily pursued by the duke de Chaulnes, who ascribed these colours to the inflection of light*. Chance led the duke to observe, that when the nearer surface of the glass mirror was clouded by breathing upon it,

CHROMATICS.

evident, that the plates of which we suppose all natural bodies to be composed, must be similar to one that is perpetually varying in its thickness; for supposing the plates of which any substance is composed to be of any determinate thickness, 9 millionth parts of an inch for instance; such of the rays as are reflected from this plate will be red. But if any of them penetrate to the depth of $1\frac{1}{8}$ of these parts, they will be reflected by a violet colour, &c. and thus must alloy and obscure the red; and so of others. If we suppose the colours to be produced by inflection, it will be equally difficult to account for some particular rays being inflected and others not; seeing we observe that all of them are capable of being inflected by every substance whatever, when they pass very near it. In some cases, too, colours are produced when the light is neither refracted nor inflected, as far as we can judge; and this seems to obscure the theory of chromatics more than any thing we have yet mentioned.

As the experiments we are now about to mention are of the greatest importance, and in direct terms contradict one of Sir Isaac Newton's, we shall give a full account of them, from Priestley's History of Vision, &c. with his remarks thereon.

¹³
One of Sir Isaac Newton's experiments found to be erroneous.

The experiment in question is the eighth of Newton's second book of Optics: "He (Sir Isaac Newton) found, he says, that when light goes out of air through several contiguous refracting mediums, as through water and glass, and thence goes out again into air, whether the refracting surfaces be parallel or inclined to one another, that light, as often as, by contrary refractions, it is so corrected, that it emerges in lines parallel to those in which it was incident, continues ever after to be white; but if the emergent rays be inclined to the incident, the whiteness of the emerging light will, by degrees, in passing on from the place of emergence, become tinged at its edges with colours. This he tried by refracting light with prisms of glass, placed within a prismatic vessel of water."

"By theorems, deduced from this experiment, he infers, that the refraction of the rays of every sort, made out of any medium into air, are known by having the refraction of the rays of any one sort; and also, that the refraction out of one medium into another is found as often as we have the refractions out of them both into any third medium."

"On the contrary, a Swedish philosopher (M. Klingenstierna) observes*, that in this experiment, the rays of light, after passing through the water and the glass, though they come out parallel to the incident rays, will be coloured; but that the smaller the glass prism is, the nearer will the result of it approach to Newton's description."

"This paper of M. Klingenstierna, being communicated to Mr Dollond by M. Mallet, made him entertain doubts concerning Newton's report of the result of his experiment, and determined him to have recourse to experiments of his own."

"He therefore cemented together two plates of parallel glass, at their edges, so as to form a prismatic vessel when stopped at the ends or bases; and the edge being turned downwards, he placed in it a glass prism with one of its edges upwards, and filled up the va-

cancy with clear water; so that the refraction of the prism was contrived to be contrary to that of the water, in order that a ray of light, transmitted through both these refracted mediums, might be effected by the difference only between the two refractions. As he found the water to refract more or less than the glass prism, he diminished or increased the angle between the glass plates, till he found the two contrary refractions to be equal, which he discovered by viewing an object through this double prism. For when it appeared neither raised nor depressed, he was satisfied that the refractions were equal, and that the emergent rays were parallel to the incident.

"Now, according to the prevailing opinion, he observes, that the object should have appeared through this double prism in its natural colour; for if the difference of refrangibility had been in all respects equal, in the two equal refractions, they would have rectified each other. But this experiment fully proved the fallacy of the received opinion, by showing the divergency of the light by the glass prism to be almost double without fraction reflection of that by the water; for the image of the object, though not at all refracted, was yet as much infected with prismatic colours as though it had been seen through a glass wedge only whose angle was near 30 degrees.

"This experiment is the very same with that of Sir Isaac Newton above mentioned, notwithstanding the result was so remarkably different: but Mr Dollond assures us, that he used all possible precaution and care in his process; and he kept his apparatus by him, that he might evince the truth of what he wrote, whenever he should be properly required to do it.

"He plainly saw, however, that if the refracting angle of the water-vessel could have admitted of a sufficient increase, the divergency of the coloured rays would have been greatly diminished, or entirely rectified; and that there would have been a very great refraction without colour, as he had already produced a great discolouring without refraction; but the inconvenience of so large an angle as that of the prismatic vessel must have been, to bring the light to an equal divergency with that of the glass prism, whose angle was about 60° , made it necessary to try some experiments of the same kind with smaller angles.

"Accordingly he got a wedge of plate-glass, the angle of which was only nine degrees; and, using it in the same circumstances, he increased the angle of the water-wedge, in which it was placed, till the divergency of the light by the water was equal to that by the glass; that is, till the image of the object, though considerably refracted by the excess of the refraction of the water, appeared nevertheless quite free from any colours proceeding from the different refrangibility of the light."

"Notwithstanding it evidently appeared, I may say ²⁰ Defenc to almost all philosophers, that Mr Dollond had made Sir Isa a real discovery of something not comprehended in the optical principles of Sir Isaac Newton, it did not appear to so sensible a man, and so good a mathematician as Mr Murdoch is universally acknowledged to be. Upon this occasion he interposed in the defence, as he imagined, of Sir Isaac Newton; maintaining, that Mr Dollond's positions, which he says, he knows not by what mishap have been deemed paradoxes in Sir

* Swed. Abhand. vol. xvi. p. 300.

C H R O M A T I C S.

²³
No light reflected by the colouring particles.

parent bodies to reflect light, being deduced from very numerous experiments, may therefore be held as a general law. It will appear the more extensive, if we consider, that, for the most part, the tinging particles of liquors or other transparent substances are extracted from opaque bodies; that the opaque bodies owe their colours to those particles, in like manner as the transparent substances do; and that by the loss of them they are deprived of their colours.

²⁴
Apparatus for making those experiments.

For making his experiments, Mr Delaval used small phials of flint-glass, whose form was a parallelopiped, and their height, exclusive of the neck, about two inches, the base about an inch square, and the neck two inches in length. The bottom and three sides of each of those phials were covered with a black varnish; the cylindrical neck, and the anterior side, except at its edges, being left uncovered. He was careful to avoid any crevices in the varnish, that no light might be admitted except through the neck or anterior side of the phials.

In these experiments it is of importance to have the phials perfectly clean; and as many of the liquors are apt to deposit a sediment, they ought to be put into the phials only at the time the experiments are to be made. The uncovered side of the phials should not be placed opposite to the window through which the light is admitted; because in that situation the light would be reflected from the farther side of the phial; and our author observes, that smooth black substances reflect light very powerfully. But as it is a principal object in the experiment, that no light be transmitted through the liquor, this is best accomplished by placing the uncovered side of the phial in such a situation that it may form a right angle with the window.

²⁵
The colouring matter only shows itself by transmitted light.

With these precautions, our author viewed a great number of solutions, both of coloured metallic salts and of the tinging matter of vegetables; universally observing, that the colour by reflection was black, whatever it might be when viewed by transmitted light. If these liquors, however, are spread thin upon any white ground, they appear of the same colour as when viewed by transmitted light; but on a black ground they afford no colour, unless the black body be polished; in which case the reflection of the light through it produces the same effect as transmission.

The experiments with tinged glasses were in many respects analogous to those with transparent-coloured liquors. For these he made several parcels of colourless glasses, principally using one composed of equal parts of borax and white sand. The glass was reduced to powder, and afterwards ground, together with the ingredients by which the colours were imparted. "This method (says he) of incorporating the tinging particles is greatly preferable to mixing them with the raw materials; and the glasses thus composed excel most others in hardness, being scarcely inferior in lustre to real gems."

The result of all the experiments made in this manner was, that when matter is of such thinness, and the tinge so diluted, that light can be transmitted through

it, the glasses then appear vividly coloured; but when they are in larger masses, and the tinging matter is more densely diffused through them, they appear black; for these, as well as the transparent-coloured liquors, show their colour by transmission. The following experiments were made with a view to determine the proportion of tinging matter which produces colour or blackness.

²⁶
1. Glass was tinged green by adding to it $\frac{1}{80}$ th of copper; and that whether the latter was used in its metallic or calcined state.
determine

2. A blue glass was made by the addition of zaffre, a purple one by manganese, a red glass by gold, and tinging yellow glasses by silver and calcined iron. A yellow matter glass resembling a topaz was likewise made by the addition of a small quantity of charcoal in powder. The same colour was likewise procured by the addition of wheat-flour, rosin, and several other inflammable matters. Small pieces of each of these glasses being ground by a lapidary, resembled gems of their different colours.

3. Having formed pieces of such glasses about two inches thick, he inclosed them in black cloth on all sides, except their farther and anterior surfaces. In this situation each of them showed a vivid colour when light was transmitted through them; but when the posterior surface was likewise covered with the cloth to prevent this transmission, no other colour than black was exhibited by any of them.

4. When plates of transparent-coloured glass, somewhat thicker than common window-glass, were made use of, they always exhibited their colours by transmitted light.

5. On intercepting the light transmitted through these coloured plates, they as constantly appeared black when placed in such a direction as to form a right angle with the window.

From these phenomena Mr Delaval deduced the following observations: 1. That the colouring particles do not reflect any light. 2. That a medium, such as Sir Isaac Newton has described, is diffused over both the anterior and farther surfaces of the plates, whereby objects are equally and regularly reflected as by a mirror. Hence, when it is said that light is reflected by the surface of any substance, it should be understood from this expression, that the reflection is effected by the medium diffused over its surface.

²⁷
6. When a lighted candle is placed near one of those on the re-coloured plates, the flame is reflected by the medium section of which is diffused over the anterior surface. The image of the light thus reflected entirely resembles the flame in size and colour; being scarcely diminished, and not in the least tinged by the coloured glass.

7. If the plate be not so intensely coloured, or so massive, as to hinder the transmission of the light of the candle, there appears a secondary image of the flame, which is reflected by the medium contiguous to the farther surface of the glass; and as the light thus reflected passes through the coloured glass, it is tinged very vividly.

8. When

such a mixture of them as does not compose whiteness, or any of the gradations between white and black; such as are called by Sir Isaac Newton, gray, dun, or russet brown.

CHROMATICS.

actly resembling the colour which had been extracted from the leaves.

3. After the colour had been totally extracted by the vinous spirit, the leaves remained apparently unaltered, either as to figure or texture; but were entirely white, or had their whiteness slightly tinged with brown.

4. Red, purple, and blue flowers, were also digested in spirit of wine, all of which yielded their colouring matter to the spirit, and became white by being deprived of it. From most of these flowers, however, the spirit acquired either no tinge at all, or only a very faint one; but when acidulated, it became red, and by the addition of an alkali appeared blue, purple, or green, according to the quantity of alkali, and the nature of the infusion. In these states, all of them, when viewed by transmitted light, or poured upon a white ground, showed their colours, but universally appeared black by reflexion.

5. Red, purple, and blue flowers, were digested in water slightly acidulated with nitrous acid. Thus, red infusions were obtained, which, by saturation with sea-salt, might be preserved for many years.

6. The same liquors were changed green, blue, or purple, by the addition of an alkali: but here the case was the same as before; all of them yielding vivid colours by transmission, but none by reflection. In making this experiment, care must be taken to add the alkali very gradually; for if too much is put in at once to the red liquor, the immediate colours between the red and the green will be wanting. To half an ounce of the red infusion it is proper to add, at once, only the smallest quantity that can be taken upon the point of a pen; repeating this addition slowly, until each of the colours be produced.

7. The flowers, after having been repeatedly mace- rated in acidulated water, lost their colouring matter, and became white.

8. Yellow flowers also communicated their colours to water and to spirit of wine. The infusion and tinctures of these flowers were subjected to the same experiments as had been employed in the examination of the liquors already mentioned; and appeared yellow by transmitted light, but did not reflect any colour.

9. White paper, linen, &c. may be tinged of any of these colours, by dipping them in the infusions; and the consideration of the manner in which the colours are imparted to the linen, affords much insight into the manner in which natural colours are produced. It has already been observed, that, when the colouring matter of plants is extracted from them, the solid fibrous parts, thus divested of their covering, display their natural whiteness. White linen, paper, &c. are formed of such fibrous vegetable matter; which is bleached by dissolving and detaching the heterogeneous colouring particles. When these are dyed or painted with vegetable colours, it is evident that they do not differ in their manner of acting on the rays of light from natural vegetable bodies; both yielding their colours by transmitting, through the transparent coloured matter, the light which is reflected from the white ground. This white matter frequently exists, without any considerable mixture, in plants, while they are in a state of vegetation; as cot-

ton, white flowers, the pith, wood, seeds, roots, and other parts of several kinds of vegetables. When decayed trees, &c. have been long exposed to the atmosphere, their coloured juices are sometimes so perfectly extracted, that the fibres appear white. This white matter is not distinct from the vegetable earth to which plants are reduced by burning. Mr Delaval has rendered ashes intensely white, by carefully calcining ²⁹ How ashes may be made in. them, and afterwards grinding with a small proportion of nitre, and exposing them to such a degree of tensely heat as would cause the nitre to decompose with the remaining quantity of phlogiston. Lastly, the ashes were digested with muriatic acid, in order to dissolve the ferruginous matter diffused through them, and repeatedly washing the remainder in water. Mixing ashes thus purified with borax, and applying a vitrifying heat, an opaque enamel is obtained, remarkable for its whiteness.

Hence it appears, that the earth which forms the substance of plants is white, and separable from that earth of substance which gives to earth its peculiar colour; that plants, whenever it is pure and unmixed, or diffused through only substance in colourless media, it shows its native whiteness; and is that the only vegetable matter endowed with a reflective reflects the power. It may be discovered, however, by other light means than that of burning: thus, roses may be whitened by exposing them to the vapour of burning sulphur: an effect which cannot be attributed to the sulphuric acid, but to the phlogiston contained in that vapour. This was proved to be the case, by exposing several kinds of red and purple flowers to the phlogistic vapour issuing from hepar sulphuris; and by this every one of them was whitened; their colour being afterwards restored by the addition of an acid either mineral or vegetable.

³¹ "Thus (says Mr Delaval) it appears, that the co-colouring matter of the flowers is not discharged or removed, but only dissolved by carbonic acid; and thereby divided into particles too minute to exhibit any colour. In this state, together with the vegetable juice in which they are diffused, they form a colourless transparent covering, through which the white matter of the flowers is seen unstained. The colouring particles of plants consist principally of inflammable matter, and their solubility in carbonic acid, and union with it, are analogous to the action of other inflammable bodies upon each other. Thus, ether dissolves all essential and expressed oils, animal empyreumatic oils and resins. Sulphur, camphor, and almost all substances abounding in phlogiston, are soluble in oils, ardent spirits, or other inflammable menstrua. The manner in which the red colour of vegetable flowers is restored, appears to be explicable from known chemical laws. When acids are applied to the whitened flowers, they unite with the phlogiston which the sulphur had communicated, and disengage it from the colouring particles; which, being thus extricated, resume their original magnitude and hue. A change of the same kind is also produced by fixed alkali, which, like the acids, has a strong attraction for phlogiston, always changes the whitened flowers to a blue, purple, or green colour.

³² "In like manner, the action of the rays of light Colours operates upon coloured bodies. Thus, dyed silk, or destroyed by other substances of that kind, when exposed to the light sun's the sun.

C H R O M A T I C S.

is produced, to the vegetable bodies already treated of. The tinctures and infusions of cochineal and of kermes yield their colours when light is transmitted through them, but show none by reflection. On diluting fresh ox-gall with water, and examining it in the phials already mentioned, that part of it which was in the neck of the phial, and viewed by transmitted light, was yellow; but the anterior surface was black, and reflected no colour. Flesh derives its colour entirely from the blood, and when deprived of it, the fibres and vessels are perfectly white; as are likewise the membranes, sinews, and bones, when freed from their aqueous and volatile parts; in which case they are a mere earth, unalterable by fire, and capable of imparting an opaque whiteness to glass.

³⁶
Of the co-
lour of
blood.

On examining blood diluted with water in one of the phials formerly described, it transmitted a red colour, and the anterior surface was almost, but not entirely, black; for it received a slight hue of brown from some coagulated particles that were suspended in the liquor. In order to procure blood sufficiently diluted, and at the same time equably and perfectly dissolved, he mixed as much cruar with spirit of sal ammoniac as imparted a bright colour to it. The liquor being then viewed in the phial, that part which was contained in the neck, and transmitted the light, appeared of a fine red; but the anterior part reflecting no light, was intensely black. Hence it appears, that the florid red colour of the flesh arises from the light which is reflected from the white fibrous substance, and transmitted back through the red transparent covering which the blood forms on every part of it.

Blood, when recently drawn, does not assume the appearance common to transparent coloured liquors; for these, when too massy to transmit light from their farther surfaces, always appear black; but blood, when recently drawn, always shows a fine red colour, in whatever way it be viewed. This is occasioned by a white matter diffused through the blood; and which is easily separated from the cruar, by dividing it after coagulation into a number of thin pieces, and washing in a sufficient quantity of pure water. Thus the water acquires a red colour, and ought to be changed daily. In a few days it will acquire no more tinge; and the remaining masses of the cruar are no longer red, but white.

³⁷
Of the shells
of lobsters.

In like manner, the red colour of the shells of lobsters, after boiling, is no more than a mere superficial covering spread over the white calcareous earth of which the shells are composed, and may be easily removed from the surface by scraping or filing. Before the application of heat, this superficial covering is much denser, insomuch that, in some parts of the shell, it appears quite black, being too thick to admit the passage of the light to the shell and back again; but where this transparent blue colour of the unboiled lobster is thinner, it constantly appears like a blue film. In like manner, the colours of the eggs of certain birds are entirely superficial, and may be scraped off, leaving the white calcareous earth exposed to view.

³⁸
Of feathers.

The case is the same with feathers, which owe their colours entirely to a very thin layer of some transparent matter upon a white ground. Our author ascertained this by scraping off the superficial colours from certain feathers which were strong enough to bear the

operation; and thus separated the coloured layers from the white ground on which they had been naturally spread. The lateral fibres of the feathers cannot indeed have their surfaces separated in this manner; but their texture, when viewed by a microscope, seems to indicate, that the colours are produced upon them by no other means than those already related. In the examination of some animal subjects, where the colouring matter could not be separated by chemical means, our author had recourse to mechanical division; but this can only be employed when the principal part of the white substance is unmixed with the coloured coat or covering which is spread upon its surface. All of them, however, by whatever means their colours could be separated, showed that they were produced in the same manner, namely, by the transmission of light from a white ground through a transparent coloured medium.

³⁹
The coloured substances of the mineral kingdom are
very numerous, and belong principally to two classes, ^{of m-}
viz. earths and metals. The former, when pure, are ^{neral sub-}
all perfectly white, and their colours arise from car-
bonic or metallic mixtures. Calcareous earths, when indurated, constitute marble, and may be tinged with various colours by means of metallic solutions: all which are similar in their nature to the dyes put upon silk, cotton, or linen, and invariably proceed from the same cause, viz. the transmission of light through a very thin and transparent coloured medium. Flints are formed from siliceous earths, and owe their colour to carbon. When sufficiently heated, they are rendered white by the loss of the inflammable matter which produced their colour. When impregnated with metals, they form agates, cornelians, jasper, and coloured crystals. The coloured gems also receive their different hues from metals: and all of them may be imitated by glasses tinged with such carbonic or metallic matters as enter into the composition of the original substances.

⁴⁰
Thus our author concludes, that the coloured earths, ^{Of metals}
gems, &c. exhibit their various tints in the same manner with other substances; viz. by the transmission of light reflected from a white ground. Our author, however, proceeds farther; and asserts, that even the colours of metals themselves are produced in the same manner.

"Gold (says he) exhibits a white light, which is tinged with yellow. I have used this expression, because it appears from experiment that gold reflects a white light, and that its yellow colour is a tinge super-added to its whiteness. The experiment is thus set forth by Sir Isaac Newton. Gold in this light (that is, a beam of white light) appears of the same yellow colour as in day light, but by intercepting at the lens a due quantity of the yellow-making rays, it will appear white like silver, as I have tried; which shows that its yellowness arises from the excess of the intercepted rays, tinging that whiteness with their colour when they are let pass.

"I have already shown, by numerous experiments, in what manner coloured tinges are produced; and it uniformly appears, from all these experiments, that colours do not arise from reflection, but from transmission only. A solution of silver is pellucid and colourless. A solution of gold transmits yellow, but reflects

C H R O M A T I C S.

only by the white or colourless particles. They consist of pellucid media, throughout which white or colourless opaque particles are dispersed. The latter are disposed at such distances from each other, that some of the incident rays of light are capable of passing through the intervals which intercede them, and thus are transmitted through the semipellucid mass. Some sorts of rays penetrate through such masses, while others, which differ from them in their refrangibility, are reflected by the light or colourless particles; and from thence are transmitted through the pellucid part of the medium which intervenes between the reflecting particles and the anterior surface of the mass. On the same principle our author explains the blue colour of the sky, the green colour of the sea, and other natural phenomena: and from his numerous experiments on this subject at last concludes, "that the power by which the several rays of light are transmitted through different media is inherent in the particles themselves, and therefore is not confined to the surfaces of such media. For if the transmissive force was exerted at the surface only, the thinner plates of coloured substances would act upon the rays as powerfully as thicker masses. But it appears from experiment, that in proportion as the rays pass through different thicknesses of coloured media, they exhibit colours differing not only in degree, but frequently in species also."

43
How colours are shown by transmitted light.

"The sun's light, by which bodies are illuminated, consists of all the rays of which a white light is compounded. These rays, in their entire and undivided state, are incident upon the opaque particles of semi-pellucid substances, and upon the colouring particles of transparent coloured substances, whenever these media are exposed to the light. When the rays accede to the opaque particles of semipellucid substances, some sorts of them are reflected back from the anterior surface of these particles: the other sorts of rays, which are not reflected back, are diverted from the direction which is opposite to the anterior surface of the opaque particles, and passing through the intervals between the particles, are transmitted through the mass.

"When the rays are incident upon the particles of transparent coloured bodies, none of them are reflected back; because the colouring particles are not endowed with any reflective power; but some of the rays are either stopped at the interior surface of the particles, or are diverted into such directions as render them incapable of passing towards the further side of the mass; and consequently such rays cannot be transmitted. The rays which are thus intercepted or dispersed, are transmitted in the same manner as those which pass through semipellucid media. Thus it is evident, that the coloured rays which are transmitted through semi-pellucid substances, are *inflected* by the opaque particles; and those which are transmitted through transparent-coloured substances are *inflected* by the colouring particles. From the preceding observations likewise it appears, that the particles of coloured media inflect the several sorts of rays according to the several sizes and densities of the particles; also in proportion to the inflammability of the media which owe their colour to them; and it is manifest that the transmission of coloured rays depends upon their inflection. All these observations are conformable to Sir Isaac Newton's doc-

trine that the rays of light are reflected, refracted, and inflected, by one and the same principle acting variously in various circumstances."

The most remarkable part of Mr Delaval's doctrine is that concerning the metals; for the better understanding of which we shall premise a short abstract of his general doctrine concerning white bodies, and the manner in which light is reflected by them. "All the ⁴⁴ Of the earths, (he observes), which in their natural state are of a pure white, constitute transparent colourless media which lig when vitrified with proper fluxes, or when dissolved in ^{is reflecte} from whit colourless menstrua; and the saline masses obtainable bodies. from their solutions are transparent and colourless, while they retain the water which is essential to their crystallization, and are not flawed or reduced to powder; but after their pores and interstices are opened in such a manner as to admit the air, they become then white and opaque by the entrance of that rare medium. The earthy particles which form the solid parts of bodies generally exceed the other in density; consequently these particles, when contiguous to the rare media already mentioned, must reflect the rays of light with a force proportionate to their density. The reflective power of bodies does not depend merely upon their excess of density, but upon their difference of density with respect to the surrounding media. Transparent colourless particles, whose density is greatly inferior to that of the media they come between, also powerfully reflect all sorts of rays, and thereby become white. Of this kind are the air or other rare fluids which occupy the interstices of liquors; and in general of all denser media in whose interstices such rare particles are admitted.

Hence we may conclude, that white opaque bodies are constituted by the union or contiguity of two or more transparent colourless media differing considerably from each other in their reflective powers. Of these substances we have examples in froth, emulsions, or other imperfect combinations of pellucid liquors, milk, snow, calcined or pulverized salts, glass or crystal reduced to powder, white earths, paper, linen, and even those metals which are called white by mineralologists and chemists: for the metals just mentioned do not appear white unless their surfaces be rough; as in that case only there are interstices on their surfaces sufficient to admit the air, and thus make a reflection of a white and vivid light.

"But the polished surfaces of metallic mirrors reflect the incident rays equably and regularly, according to their several angles of incidence; so that the reflected rays do not interfere with each other, but remain separate and unmixed, and therefore distinctly exhibit their several colours. Hence it is evident, that white surfaces cannot act upon the light as mirrors; because all the rays which are reflected from them are blended in a promiscuous and disorderly manner.

"The above mentioned phenomena give much in-⁴⁵ sight into the nature and cause of opacity: as they clearly show, that even the rarest transparent colourless substances, when their surfaces are adjacent to media differing greatly from them in refractive power, may thereby acquire a perfect opacity, and may assume a resplendency and hue so similar to that of white metals, that the rarer pellucid substances cannot by the sight

C H R O M A T I C S.

colour of those three. For the yellow and blue, if they are equal in quantity, will draw the intermediate green equally toward them, and keep it, as it were, in equilibrio, that it verge not more to the one than to the other. To this compound green there may be added some red and violet; and yet the green will not immediately cease, but grow less vivid; till by adding more red and violet it will become more diluted; and at last, by the prevalence of the added colours, it will be overcome, and turned into some anomalous colour.

If the sun's white, composed of all kinds of rays, be added to any homogeneous colour, that colour will not vanish, nor change its species, but be diluted; and by adding more white, it will become continually more diluted. Lastly, if red and violet be mixed, there will be generated, according to their various proportions, various purples, such as are not like, in appearance, to the colour of any homogeneous light; and of these purples, mixed with blue and yellow, other new colours may be composed.

III. Out of three of the primary colours, red, yellow, and blue, to produce all the other prismatic colours, and all that are intermediate to them.

Fig. 2.

Provide three panes of glass (fig. 2.) of about five inches square; and divide each of them, by parallel lines, into five equal parts. Take three sheets of very thin paper; which you must paint lightly, one blue, another yellow, and the third red (D). Then paste on one of the glasses five pieces of the red paper, one of which must cover the whole glass, the second only the four lower divisions, the third the three lower, the fourth the two lowest, and the fifth the last division only. On the other glasses five pieces of the blue and yellow papers must be pasted in like manner. You must also have a box of about six inches long, and the same depth and width as the glasses; it must be black on the inside: let one end be quite open, and in the opposite end there must be a hole large enough to see the glasses completely. It must also open at the top, that the glasses may be placed in it conveniently.

When you have put any one of these glasses in the box, and the open end is turned toward the sun, you will see five distinct shades of the colour it contains. If you place the blue and yellow glasses together, in a similar direction, you will see five shades of green distinctly formed. When the blue and red glasses are

placed, a bright violet will be produced: and by the red and yellow, the several shades of orange.

If, instead of placing these glasses in a similar position, you place the side AB of the yellow glass against the side BD of the blue, you will see all the various greens that are produced by nature (E); if the blue and red glasses be placed in that manner, you will have all the possible varieties of purples, violets, &c.; and, lastly, if the red and orange glasses be so placed, there will be all the intermediate colours, as the marygold, aurora, &c.

IV. By means of the three primary colours, red, yellow, and blue, together with light and shade, to produce all the gradations of the prismatic colours.

On seven square panes of glass, paste papers that are painted with the seven prismatic colours, in the same manner as the last experiment. The colours for the orange, green, indigo, and violet, may be made by mixing the other three. Then with bistre (F,) well diluted, shade a sheet of very thin paper, by laying it light on both its sides. With pieces of this paper cover four-fifths of a glass, of the same size with the others, by laying one piece on the four lowest divisions, another on the three lowest, a third on the two lowest, and the fourth on the lowest division only, and leaving the top division quite uncovered. When one of the coloured glasses is placed in the box, together with the glass of shades, so that the side AB of the one be applied to the side BC of the other, as in fig. 3. the several gradations of colours will appear shaded in the same manner as a drapery judiciously painted with that colour.

It is on this principle that certain French artists have proceeded in their endeavours to imitate, by designs printed in colours, paintings in oil: which they do by four plates of the same size, on each of which is engraved the same design. One of these contains all the shades that are to be represented, and which are painted either black or with a dark gray. One of the three other plates is covered with blue, another with red, and the third with yellow; each of them being engraved on those parts only which are to represent that colour (G); and the engraving is either stronger or weaker, in proportion to the tone of colour that is to be represented (H).

These four plates are then passed alternately under

the

(D) Water-colours must be used for this purpose: the blue may be that of Prussia, and very bright; the red, carmine; and the yellow, gamboge, mixed with a little saffron. These colours must be laid very light and even on both sides of the paper.

(E) In the first position of the glasses, the quantity of blue and yellow being equal, the same sort of green was constantly visible; but by thus inverting the glasses, the quantity of the colours being constantly unequal, a very pleasing variety of tints is produced.

(F) The bistre here used must be made of soot, not that in stone.

(G) When a red drapery is required; it is engraved on the plate assigned to that colour; and so of yellow and blue: but if one of the other colours be wanting, suppose violet, it must be engraved on those that print the red blue; and so of the rest. The plates of this kind have been hitherto engraved in the manner of mezzotinto; but these, unless they are skilfully managed, are soon effaced. Engravings in the manner of crayon will perhaps answer better.

(H) The principal difficulty in this sort of engraving arises from want of skilful management, in giving each plate that precise degree of engraving which will produce the tone of colour required. If a bright green

is

C H R O M A T I C S.

VIII. *The diatonic scale of colours.*

The illustrious Newton, in the course of his investigations of the properties of light, discovered that the length of the spaces which the seven primary colours possess in the spectrum, exactly corresponds to those of chords that sound the seven notes in the diatonic scale of music: As is evident by the following experiment.

Fig. 7.

On a paper in a dark chamber, let a ray of light be largely refracted into the spectrum AFTMGP (fig. 7.), and mark the precise boundaries of the several colours, as *a*, *b*, *c*, &c. Draw lines from those points perpendicular to the opposite side, and you will find that the spaces *M r f F*, by which the red is bounded; *r g e f*, by which the orange is bounded; *g p e d*, by which the yellow is bounded, &c. will be in exact proportion to the divisions of a musical chord for the notes of an octave; that is, as the intervals of these numbers $1, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \frac{6}{7}, \frac{7}{8}, \frac{8}{9}, \frac{9}{10}, \frac{10}{11}$.

IX. *Colorific music.*

Father Castel, a Frenchman, in a curious book he has published on chromatics, supposes the note *ut* to answer to blue in the prismatic colours; the note *re* to yellow, and *mi* to red. The other tones he refers to the intermediate colours; from whence he constructs the following gamut of colorific music:

Ut	Blue
Ut sharp	Sea green
Re	Bright green
Re sharp	Olive green
Mi	Yellow
Fa	Aurora
Fa sharp	Orange
Sol	Red
Sol sharp	Crimson
La	Violet
La sharp	Blue Violet
Si	Sky blue
Ut	Blue

This gamut, according to this plan, is to be continued in the same manner for the following octave; except that the colours are to be more vivid.

He supposes that these colours, by striking the eye in the same succession as the sounds (to which he makes them analogous) do the ear, and in the same order of time, they will produce correspondent sensations of pleasure in the mind. It is on these general principles, which F. Castel has elucidated in his treatise, that he has endeavoured, though with little success, to establish his ocular harpsichord.

The construction of this instrument, as here explained, will show that the effects produced by colours by no means answer those of sounds, and that the principal relation there is between them consists in the duration of the time that they respectively affect the senses.

Between two circles of pasteboard, of ten inches diameter, AB and CD, (fig. 8.), inclose a hollow paste-

Fig. 8.

board cylinder E, 18 inches long. Divide this cylinder into spaces half an inch wide, by a spiral line that runs round it from the top to the bottom, and divide its surface into six equal parts by parallel lines drawn between its two extremities: as is expressed in the figure.

Let the circle AB, at top, be open, and let that at bottom, CD, be closed, and supported by an axis or screw, of half an inch diameter, which must turn freely in a nut placed at the bottom of a box we shall presently describe. To the axis just mentioned adjust a wooden wheel G, of two inches and a half in diameter, and that has 12 or 15 teeth, which take the endless screw H. Let this cylinder be inclosed in a box ILMN (fig. 9.) whose base is square, and at whose bottom there is a nut, in which the axis F turns. Observe that the endless screw H should come out of the box, that it may receive the handle O, by which the cylinder is to be turned.

This box being closed all round, place over it a tin covering A, which will be perforated in different parts; from this cover there must hang three or four lights, so placed that they may strongly illumine the inside of the cylinder. In one side of this box (which should be covered with pasteboard) cut eight apertures, *a*, *b*, *c*, *d*, *e*, *f*, *g*, *h*, (fig. 9.) of half an inch wide, and $\frac{1}{2}$ of an inch high; they must be directly over each other, and the distance between them must be exactly two inches. It is by these openings, which here correspond to the musical notes, that the various colours analogous to them are to appear; and which being placed on the pasteboard cylinder, as we have shown, are reflected by means of the lights placed within it.

It is easy to conceive, that when the handle O is turned, the cylinder in consequence rising half an inch, if it be turned five times round, it will successively show, at the openings made in the side of the box, all those that are in the cylinder itself, and which are ranged according to the direction of the inclined lines drawn on it. It is therefore according to the duration of the notes which are to be expressed, that the apertures on the cylinder are to be cut. Observe, that the space between two of the parallel lines drawn vertically on the cylinder, is equal to one measure of time; therefore, for every turn of the cylinder, there are six measures, and thirty measures for the air that is to be played by this instrument.

The several apertures being made in the side of the cylinder, in conformity to the notes of the tune that is to be expressed, they are to be covered with double pieces of very thin paper, painted on both sides with the colours that are to represent the musical notes.

This experiment might be executed in a different manner, and with much greater extent; but as the entertainment would not equal the trouble and expence, we have thought it sufficient to give the above, by which the reader will be enabled to judge how far the analogy supposed by F. Castel really exists. See the article CHROMATICS in the SUPPLEMENT.

CHRONIC,

Chronio, CHRONIC, or CHRONICAL, among physicians, an **Chronicle.** appellation given to diseases that continue a long time; in contradistinction to those that soon terminate, and are called *acute*.

CHRONICLE, in matters of literature, a species or kind of history disposed according to the order of time, and agreeing in most respects with annals. See ANNALS.

Parian Chronicle. See ARUNDELIAN Marbles. Since that article was printed, in which an abstract was given of Mr Robertson's doubts and observations respecting the authenticity of the Parian Chronicle, one or two publications have appeared in answer, but none of them calculated to remove the objections, or materially to affect the arguments that had been stated with so much learning and ingenuity against it. The following strictures, however, with which the Monthly Reviewers have concluded their critique of Mr Robertson's performance, seem to merit consideration.

Monthly Review. On Objection I. *That the characters have no certain or unequivocal marks of antiquity*, the Reviewers remark, Jan. 1789. that this seems rather to be an answer to a defender of the inscription, than an objection. If a zealous partisan of the marble should appeal to its characters and orthography, as decisive proofs of its being genuine, it would be proper enough to answer, that these circumstances afford no certain criterion of authenticity. But in this word *certain* sculks an unlucky ambiguity. If it means demonstrative, it must be allowed that no inscription can be proved to be certainly genuine from these appearances; but if it means no more than highly probable, many inscriptions possess sufficient internal evidence to give their claims this degree of certainty. The true question is, Has not the Parian Chronicle every mark of antiquity that can be expected in a monument claiming the age of 2000 years? The letters Γ and ξ are, by Mr R.'s own confession, such as occur in genuine inscriptions; and to say in answer, that an impostor might copy the forms of these letters from other inscriptions, is already to suppose the inscription forged, before it is rendered probable by argument. The learned author of the Dissertation seems to betray some doubt of his own conclusion: for he adds, p. 56. "that the antiquity of an inscription can never be proved by the mere form of the letters, because the most ancient characters are as easily counterfeited as the modern." But this objection is equally applicable to all other ancient inscriptions; and is not to the purpose, if the present inscription has any peculiar marks of imposture in its characters and orthography. "The characters do not resemble the Sigean, the Nemean, or the Delian inscriptions." Mr R. answers this objection himself, by adding, "which are supposed to be of a more ancient date." The opposite reason to this will be a sufficient answer to the other objection, "that they do not resemble the Farneian pillars or the Alexandrian MS." If "they differ in many respects from the Marmor Sandvicense," they may be presumed to agree in many. "They seem to resemble more than any other, the alphabet taken by Montfaucon from the marmor Cyzicenum." Thus it appears that the Parian Chronicle most nearly resembles the two inscriptions, to whose age it most nearly approaches.

When Mr R. adds, that the letters "are such as

an ordinary stone-cutter would probably make, if he *Chronicle.* were employed to engrave a Greek inscription, according to the alphabet now in use," he must be understood *cum grano salis*. The engraver of a fac-simile generally omits some nice and minute touches in taking his copy; but, even with this abatement, we dare appeal to any adept in Greek calligraphy, whether the specimen facing p. 56. will justify our author's observation? "The small letters (Ο, Θ, Ω,) intermixed among the larger, have an air of affectation and artifice." Then has the greater part of ancient inscriptions an air of affectation and artifice. For the Ο is perpetually engraved in this diminutive size; and Ω being of a kindred sound, and Θ of a kindred shape, how can we wonder that all three should be represented of the same magnitude? In the inscription which immediately follows the marble in Dr Chandler's edition, No. xxiv. these very three letters are never so large as the rest, and often much smaller; of which there are instances in the three first lines. See also two medals in the second part of Dorville's Sicula, Tab. xvi. Numb. 7. 9.

"From the archaisms, such as οὐ Λυκίης οὐ Κυθήας, οὐ Πάρη, &c. &c. no conclusion can be drawn in favour of the authenticity of the inscription." Yet surely every thing common to it with other inscriptions, confessedly genuine, creates a reasonable presumption in its favour. "But what reason could there be for these archaisms in the Parian Chronicle? We do not usually find them in Greek writers of the same age, or even of a more early date." The reason is, according to our opinion, that such archaisms were then in use: this we know from other inscriptions, in which such archaisms (or, as our author afterwards calls them, barbarisms) are frequent. Nothing can be inferred from the Greek writers, unless we had their autographs. The present system of orthography in our printed Greek books is out of the question. Again, "The inscription sometimes adopts and sometimes neglects these archaisms, as in lines 4, 12, 27, 52, 63, 67." This inconsistency either is no valid objection, or if it be valid, will demolish not only almost every other inscription, but almost every writing whatsoever. For example, in the inscription just quoted, No. xxiv. we find τοΝ βασιλεύ, l. 20. and στάμ, πιμπη, 24. A little farther, N^o xxvi. l. 31. we have οΓ Maynēus, 57. 73. 81. ιΚ Maynēas, and 106, 108. ιΚΓ Maynēus. The Coreyrean inscription (Montfaucon, Diar. Ital. p. 420.) promiscuously uses ιΚδηλός, and ιΔανός. In English, who is surprised to find *has* and *hath*, *a hand* and *an hand*, *a useful* and *an useful*, in the works of the same author? We could produce instances of this inaccuracy from the same page, nay from the same sentence.

"The authenticity of those inscriptions, in which these archaisms appear, must be established, before they can be produced in opposition to the present argument." This is, we cannot help thinking, rather too severe a restriction. If no inscription may be quoted before it be proved genuine, the learned author of the Dissertation need not be afraid of being confuted; for nobody will engage with him on such conditions. Perhaps the reverse of the rule will be thought more equitable; that every inscription be allowed to be genuine, till its authenticity be rendered doubtful by

Chronicle. by probable arguments. We will conclude this head with two short observations. In Selden's copy, l. 26. was written ΠΟΙΗΣΙΝ, which the latter editions have altered to ΠΟΙΗΣΙΝ, but without reason, the other being the more ancient way of writing, common in MSS. and sometimes found on inscriptions. (See G. Koen's Notes on *Gregorius de Dialectis*, p. 30.) In l. 83. the marble has Καλλιού, for which Palmer wished to substitute Καλλίου. Dr Taylor refutes him from the *Marmor Sandvicense*, observing at the same time, that this orthography occurs in no other place whatever, except in these two monuments. Is it likely that two engravers should by chance coincide in the same mistake, or that the forger of the Parian Chronicle (if it be forged) should have seen the *Marmor Sandvicense*, and taken notice of this peculiarity with the intention of afterwards employing it in the fabrication of an imposture?

The reviewers next proceed to consider, but more briefly, the other objections.

1. *It is not probable that the Chronicle was engraved for private use.*—1. Because it was such an expence, as few learned Greeks were able to afford. If only a few were able to afford it, some one of those few might be willing to incur it. But let Mr R. consider how likely it is that a modern, and probably a needy Greek, should be more able to afford it in the last century, than a learned Greek 2000 years ago! 2. *A manuscript is more readily circulated.* Do men never prefer cumbrous splendor to cheapness and convenience? And if this composition, instead of being engraved on marble, had been committed to parchment, would it have had a better chance of coming down to the present age? Such a flying sheet would soon be lost; or, if a copy had, by miracle, been preserved to us, the objections to its being genuine would be more plausible than any that have been urged against the inscription. What Mr R. says about the errors to which an inscription is liable, &c. will only prove that chronological inscriptions ought not to be engraved; but not that they never were. We allow that the common method of writing in the reign of Ptolemy Philadelphus was NOT on STONES. But it was common enough to occur to the mind of any person who wished to leave behind him a memorial at once of his learning and magnificence.

III. This objection, that the marble does not appear to be engraved by public authority, we shall readily admit, though Bentley (Diss. on Phalaris, p. 251.) leans to the contrary opinion. In explaining this objection, the learned dissertator observes, that though the expression, *εγχωρεις της Πάρου*, would lead us to suppose that the inscription related to Paros, not a single circumstance in the history of that island is mentioned. But this expression only shows that the author was an inhabitant of Paros, and intended to give his readers a clue, or *parapagma*, by the aid of which they might adjust the general chronology of Greece to the dates of their own history. "It is as absurd as would be a marble in Jamaica containing the revolutions of England." We see no absurdity in supposing a book to be written in Jamaica containing the revolutions of England. The natives of Paros were not uninterested in events relating to the general history of Greece, particularly of Athens; and how can we tell whether the author were an *inquilinus*, or a native of the island;

whether he thought it a place beneath his care; or Chronicle. whether he had devoted a separate inscription to the chronology of Paros?

IV. *It has been frequently observed, that the earlier periods of the Grecian history are involved in darkness and confusion.* Granted. It follows, then, that "an author who should attempt to settle the dates of the earlier periods would frequently contradict preceding, and be contradicted by subsequent, writers; that he would naturally fall into mistakes; and at best could only hope to adopt the most probable system. But the difficulty of the task, or the impossibility of success, are not sufficient to prove that no man has been rash or mad enough to make the attempt." On the contrary, we know that many have made it. What a number of discordant opinions has Mr R. himself given us from the ancients concerning the age of Homer? This consideration will in part obviate another objection, that the Parian Chronicle does not agree with any ancient author. For if the ancients contradict one another, how could it follow more than one of them? and why might not the author, without any imputation of ignorance or rashness, sometimes depart from them all? If indeed he disagrees with them when they are unanimous, it might furnish matter for suspicion: though even this would be far from a decisive argument, unless the ancients were so extremely unlike the moderns, as never to be fond of singular and paradoxical positions.

V. *This Chronicle is not once mentioned by any writer of antiquity.* How many of those inscriptions, which are preserved to the present day, are mentioned by classical authors? Verrius Flaccus composed a Roman kalendar, which, as a monument of his learning and industry, was engraved on marble, and fixed in the most public part of Preneste. Fragments of this very kalendar were lately dug up at Preneste, and have been published by a learned Italian. Now if the passage of Suetonius, which informs us of this circumstance, had been lost, would the silence of the Latin writers prove that the fragments were not genuine remains of antiquity? It may be said that the cases are not parallel; for not a single author mentions the Parian Chronicle, whereas Suetonius does mention Verrius's Roman kalendar. To this we answer, It is dangerous to deny the authenticity of any monument on the slender probability of its being casually mentioned by a single author. We shall also observe, that this fact of the Hemicyclium of Verrius will answer some part of the Dissertator's second objection: "The Parian Chronicle is not an inscription that might have been concealed in a private library." Why not? it is of no extraordinary bulk; and might formerly have been concealed in a private library, or in a private room, with as much ease as many inscriptions are now concealed in very narrow spaces. But unless this monument were placed in some conspicuous part of the island, and obtruded itself on the notice of every traveller, the wonder will in great measure cease why it is never quoted by the ancients. Of the nine authors named in p. 109, had any one ever visited Paros? If Pausanias had travelled thither, and published his description of the place, we might perhaps expect to find some mention of this marble in so curious and inquisitive a writer. But though the inscription existed, and were famous at Paros, there seems no necessity for any

Chronicle. them from Athenæus: yet Ælian never mentions Atheneus in his Various History. So that whether Ælian copied from the marble, or only drew from a common source, he might, and very probably would, conceal his authority.

VIII. *The history of the discovery of the Marbles is obscure and unsatisfactory.*

In p. 169, it is said to be "related with suspicious circumstances, and without any of those clear and unequivocal evidences which always discriminate truth from falsehood." The question is then finally decided. If the inscription has not any of those evidences which truth always possesses, and which falsehood always wants, it is most certainly forged. The learned dissertator seems for a moment to have forgotten the modest character of a *doubter*, and to personate the dogmatist. But waving this, we shall add, that, as far as we can see, no appearance of fraud is discoverable in any part of the transaction. The history of many inscriptions is related in a manner equally unsatisfactory; and if it could be clearly proved that the marble was dug up at Paros, what could be easier for a critic, who is determined at any rate to object, than to say, that it was buried there in order to be afterward dug up? If the person who brought this treasure to light had been charged on the spot with forging it, or co-occurring in the forgery, and had then refused to produce the external evidences of its authenticity, we should have a right to question, or perhaps to deny, that it was genuine. But no such objection having been made or hinted, at the original time of its discovery, it is unreasonable to require such testimony as it is now impossible to obtain. "There is nothing said of it in Sir T. Roe's negotiations." What is the inference? That Sir Thomas knew nothing of it, or believed it to be spurious, or forged it, or was privy to the forgery? Surely nothing of this kind can be pretended. But let our author account for the circumstance if he can. To us it seems of no consequence on either side. "Pieresc made no effort to recover this precious relic; and from this composure he seems to have entertained some secret suspicions of its authenticity." Pieresc would have had no chance of recovering it after it was in the possession of Lord Arundel's agents. He was either a real or a pretended patron of letters; and it became him to affect to be pleased that the inscription had come into England, and was illustrated by his learned friend Selden. John F. Gronovius had, with great labour and expence, collated Anna Comenæa's Alexiades, and intended to publish them. While he was waiting for some other collations, they were intercepted, and the work was published by another. As soon as Gronovius heard this unpleasant news, he answered, that learned men were engaged in a common cause; that if one prevented another in any publication, he ought rather to be thanked for lightening the burden, than blamed for interfering. But who would conclude from this answer, that Gronovius thought the Alexiades spurious, or not worthy of any regard?

Mr R. calculates, that the venders of the marble received 200 pieces. But here again we are left in the dark, unless we knew the precise value of these pieces. Perhaps they might be equal to an hundred of our pounds, perhaps only to fifty. Besides, as they at first

bargained with Samson, Pieresc's supposed Jew agent, Chronicle. for fifty pieces only, they could not have forged the inscription with the clear prospect of receiving more; neither does it appear that they were paid by Samson. It is fully as reasonable to suppose fraud on the one side as on the other; and if Samson, after having the marble in his possession, refused or delayed to pay the sum stipulated, he might, in consequence of such refusal or delay, be thrown into prison, and might, in revenge, damage the marble before the owners could recover it. We own this account of ours to be a romance; but it is lawful to combat romance with romance.

IX. *The world has been frequently imposed upon by spurious books and inscriptions; and therefore we should be extremely cautious with regard to what we receive under the venerable name of antiquity.*

Much truth is observable in this remark. But the danger lies in applying such general apophthegms to particular cases. In the first place, it must be observed, that no forged books will exactly suit Mr R.'s purpose, but such as pretend to be the author's own hand-writing; nor any inscriptions, but such as are still extant on the original materials, or such as were known to be extant at the time of their pretended discovery. Let the argument be bounded by these limits, and the number of forgeries will be very much reduced. We are not in possession of Cyriacus Anconitanus's book; but if we were governed by authority, we should think that the testimony of Reinesius in his favour greatly overbalances all that Augustinus has said to his prejudice. The opinion of Reinesius is of the more weight, because he suspects Ursianus of publishing counterfeit monuments. We likewise find the most eminent critics of the present age quoting Cyriacus without suspicion (Vid. Rubken. in *Timæi Lex.* Plat. p. 10. apud Koen, ad Gregor. p. 140.). The doctrine advanced in the citation from Hardouin is exactly conformable to that writer's usual paradoxes. He wanted to destroy the credit of all the Greek and Latin writers. But inscriptions hung like a millstone about the neck of his project. He therefore resolved to make sure work, and to deny the genuineness of as many as he saw convenient: to effect which purpose, he intrenched himself in a general accusation. If the author of the dissertation had quoted a few more paragraphs from Hardouin, in which he endeavours, after his manner, to show the forgery of some inscriptions, he would at once have administered the poison and the antidote. But to the reveries of that learned madman, respecting Greek supposititious compositions of this nature, we shall content ourselves with opposing the sentiments of a modern critic, whose judgment on the subject of spurious inscriptions will not be disputed. Maffei, in the introduction to the third book, c. 1. p. 51. of his admirable, though unfinished, work, *de Arte Critica Lapidaria*, uses these words: *Inscriptionum Graecæ loquuntur commentitias, si cum Latinis comparemus, deprehendi paucas; neque enim ullum omnino est, in tanta debacchantium falsariorum libidine, monumenti genus, in quod si sibi minus licere putserint. Argumento est, paucissimas usque in hanc diem ab eruditis viris, et in hoc literarum genere plurimum vereatis rejectas esse, falsique damnatas.*

Books of CHRONICLES, a canonical writing of the Old

Chronicles. Old Testament. It is uncertain which were written first, *The Books of Kings*, or *The Chronicles*, since they each refer to the other. However it be, the latter is often more full and comprehensive than the former. Whence the Greek interpreters call these two books *Πληραισματα*, *Supplements, Additions, or things omitted*, because they contain some circumstances which are omitted in the other historical books. The Jews make but one book of the *Chronicles*, under the title of *Dibre-Haamim*, i. e. *Journals or Annals*. Ezra is generally believed to be the author of these books. It is certain they were written after the end of the Babylonish captivity and the first year of the reign of Cyrus, of whom mention is made in the last chapter of the second book.

The *Chronicles*, or *Paraleipomena*, are an abridgement of all the sacred history, from the beginning of

the Jewish nation to their first return from the captivity, taken out of those books of the Bible which we still have, and out of other annals which the author had then by him. The design of the writer was to give the Jews a series of their history. The first book relates to the rise and propagation of the people of Israel from Adam, and gives a punctual and exact account of the reign of David. The second book sets down the progress and end of the kingdom of Judah, to the very year of their return from the Babylonish captivity.

CHRONOGRAM, a species of false wit, consisting in this, that a certain date or epocha is expressed by numeral letters of one or more verses; such is that which makes the motto of a medal struck by Gustavus Adolphus in 1632:

ChrIstVs DVX; ergo trIVMphVs.

Chrono-
gram.
Chrono-
logy.

C H R O N O L O G Y,

TREATS of time, the method of measuring its parts, and adapting these, when distinguished by proper marks and characters, to past transactions, for the illustration of history. This science therefore consists of two parts. The first treats of the proper measurement of time, and the adjustment of its several divisions; the second, of fixing the dates of the various events recorded in history, and ranging them according to the several divisions of time, in the order in which they happened.

How divided.

2
Unknown to the ancients.

3
Inaccurate methods of computing time at first made use of.

Chronology, comparatively speaking, is but of modern date. The ancient poets appear to have been entirely unacquainted with it; and Homer, the most celebrated of them all, mentions nothing like a formal kalendar in any part of his writings. In the most early periods, the only measurement of time was by the seasons, the revolutions of the sun and moon; and many ages must have elapsed before the mode of computation by dating events came into general use. Several centuries intervened between the era of the Olympic games and the first historians; and several more between these and the first authors of chronology. When time first began to be reckoned, we find its measures very indeterminate. The succession of Juno's priestesses at Argos served Hellanicus for the regulation of his narrative; while Ephorus reckoned his matters by generations. Even in the histories of Herodotus and Thucydides, we find no regular dates for the events recorded: nor was there any attempt to establish a fixed era, until the time of Ptolemy Philadelphus, who attempted it by comparing and correcting the dates of the Olympiads, the kings of Sparta, and the succession of the priestesses of Juno at Argos. Eratosthenes and Apollodorus digested the events recorded by them, according to the succession of the Olympiads and of the Spartan kings.

The uncertainty of the measures of time in the most early periods renders the histories of those times equally uncertain; and even after the invention of dates and eras, we find the ancient historians very inaccurate to them, and inaccurate in their computations. Frequently their eras and years were reckoned dif-

ferently without their being sensible of it, or at least without giving the reader any information concerning it; a circumstance which has rendered the fragments of their works now remaining of very little use to posterity. The Chaldean and Egyptian writers are generally acknowledged to be fabulous; and Strabo acquaints us, that Diodorus Siculus, and the other early historians of Greece, were ill informed and credulous. Ancient history Hence the disagreement among the ancient historians, storians not and the extreme confusion and contradiction we meet to be corrected. with on comparing their works. Hellanicus and Acusilaus disagreed about their genealogies; the latter rejected the traditions of Hesiod. Timæus accused Ephorus of falsehood, and the rest of the world accused Timæus. The most fabulous legends were imposed on the world by Herodotus; and even Thucydides and Diodorus, generally accounted able historians, have been convicted of error. The chronology of the Latins is still more uncertain. The records of the Romans were destroyed by the Gauls; and Fabius Pictor, the most ancient of their historians, was obliged to borrow the greatest part of his information from the Greeks. In other European nations the chronology is still more imperfect, and of a later date; and even in modern times, a considerable degree of confusion and inaccuracy has arisen from want of attention in the historians to ascertain the dates and epochs with precision.

From these observations it is obvious how necessary a proper system of chronology must be for the right understanding of history, and likewise how very difficult it must be to establish such a system. In this, however, several learned men have excelled, particularly Julius Africanus, Eusebius of Cæsarea, George Cynelle, John of Antioch, Dennis, Petavius, Cluviar, Calvisius, Usher, Simson, Marsham, Blair, and Playfair. It is founded, 1. On astronomical observations, particularly of the eclipses of the sun and moon, combined with the calculations of the eras and years of different nations. 2. The testimonies of credible authors. 3. Those epochs in history which are so well attested and determined, that they have never been controverted.

CHRONOLOGY.

⁶ converted. 4. Ancient medals, coins, monuments, and inscriptions. None of these, however, can be sufficiently intelligible without an explanation of the first part, which, we have already observed, considers the divisions of time, and of which therefore we shall treat in the first place.

Of the division of time into days.

The most obvious division of time is derived from the apparent revolutions of the celestial bodies, particularly of the sun, which by the vicissitudes of day and night becomes evident to the most barbarous and ignorant nations. In strict propriety of speech, the word *day* signifies only that portion of time during which the sun diffuses light on any part of the earth; but in the most comprehensible sense, it includes the night also, and is called by chronologers a *civil day*; by astronomers a *natural*, and sometimes an *artificial* day.

⁷ Civil, solar &c. days defined.

By a *civil day* is meant the interval betwixt the sun's departure from any given point in the heavens and next return to the same, with as much more as answers to its diurnal motion eastward, which is at the rate of 59 minutes and 8 seconds of a degree, or 3 minutes and 57 seconds of time. It is also called a *solar day*, and is longer than a *sidereal* one, insomuch that, if the former be divided into 24 equal parts or hours, the latter will consist only of 23 hours 56 minutes. The apparent inequality of the sun's motion, likewise, arising from the obliquity of the ecliptic, produces another inequality in the length of the days: and hence the difference betwixt real and apparent time, so that the apparent motion of the sun cannot always be a true measure of duration. These inequalities, however, are capable of being reduced to a general standard, which furnishes an exact measure throughout the year; whence arises the difference between mean and apparent time, as is explained under the article ASTRONOMY.

⁸ Different ways of computing the beginning of the day.

There have been very considerable differences among nations with regard to the beginning and ending of their days. The beginning of the day was counted from sunrise by the Babylonians, Syrians, Persians, and Indians. The civil day of the Jews was begun from sunrise, and their sacred one from sunset; the latter mode of computation being followed by the Athenians, Arabs, ancient Gauls and other European nations. According to some, the Egyptians began their day at sunset, while others are of opinion that they computed from noon or from sunrise; and Pliny informs us that they computed their civil day from one midnight to another. It is probable, however, that they had different modes of computation in different provinces or cities. The Ausonians, the most ancient inhabitants of Italy, computed the day from midnight; and the astronomers of Cathay and Oighur in the East Indies reckoned in the same manner. This mode of computation was adopted by Hipparchus, Copernicus, and other astronomers, and is now in common use among ourselves. The *astronomical* day, however, as it is called, on account of its being used in astronomical calculation, commences at noon, and ends at the same time the following day. The Mahometana reckon from one twilight to another. In Italy, the civil day commences at some indeterminate point after sunset; whence the time of noon varies with the season of the year. At the summer solstice, the

⁹ Strange method computation in Italy.

clock strikes 16 at noon, and 19 at the time of the winter solstice. Thus also the length of each day differs by several minutes from that immediately preceding or following it. This variation requires a considerable difficulty in adjusting their time by clocks. It is accomplished, however, by a sudden movement which corrects the difference when it amounts to a quarter of an hour; and this it does sometimes at the end of eight days, sometimes at the end of 15, and sometimes at the end of 40. Information of all this is given by a printed kalendar, which announces, that from the 16th of February, for instance, to the 24th, it will be noon at a quarter past 18; from the 24th of February to the 6th of March, it will be noon at 18 o'clock precisely; from the first of June to the 13th of July, the hour of noon will be at 16 o'clock; on the 13th of July it will be at half an hour after 16; and so on throughout the different months of the year. This absurd method of measuring the day continues, notwithstanding several attempts to suppress it, throughout the whole of Italy, a few provinces only excepted.

¹⁰ The subdivisions of the day have not been less various than the computations of the day itself. The most obvious division, and which could at no time, nor in ^{of the day.} no age, be mistaken, was that of morning and evening. In process of time the two intermediate points of noon and midnight were determined; and this division into quarters was in use long before the invention of hours.

From this subdivision probably arose the method used by the Jews and Romans of dividing the day and night into four vigils or watches. The first began at sunrise, or six in the morning; the second at nine; the third at twelve; and the fourth at three in the afternoon. In like manner the night was divided into four parts; the first beginning at six in the evening, the second at nine, the third at twelve, and the fourth at three in the morning. The first of these divisions was called by the Jews the *third hour* of the day; the second the *sixth*; the third the *ninth*; and the fourth the *twelfth*, and sometimes the *eleventh*. Another division in use, not only among the nations above mentioned, but the Greeks also, was that which reckoned the first quarter from sunset to midnight; the second from midnight to sunrise; the third, or morning watch, from morning to noon; and the fourth from noon to sunset.

¹¹ It is uncertain at what time the more minute subdivision of the day into hours first commenced. It of hours does not appear from the writings of Moses that he was acquainted with it, as he mentions only the morning, mid-day, evening, and sunset. Hence we may conclude, that the Egyptians at that time knew nothing of it, as Moses was well skilled in their learning. According to Herodotus, the Greeks received the knowledge of the twelve hours of the day from the Babylonians. It is probable, however, that the division was actually known and in use before the name *hour* was applied to it; as Censorinus informs us that the term was not made use of in Rome for 300 years after its foundation; nor was it known at the time the twelve tables were constructed.

The eastern nations divide the day and night in a very singulat manner; the origin of which is not easily discovered.