

discovered. During the Saxon period the chief events in its annals are the foundation of an abbey by Offa in 775, and the coronation of Edgar in 973. In the reign of William Rufus the city was reduced to ashes, but it soon recovered its prosperity under its abbot John of Villula, and his successors. Richard Cœur de Lion granted its first charter as a free borough, and about the same time the foundations were laid of its wool manufactures. In 1297 the city was first represented in parliament; in 1447 it obtained a charter from Henry VI., and one from Queen Elizabeth in 1590. In the 18th century it became the most fashionable watering-place in England, and was greatly extended under the direction of the architects Wood.

See Warner's *History and Antiquities of Bath*, 1801; Mainwaring's *Collectanea*; C. P. Russell, *On the Growth of Bath*, read before the Arch. Inst., 1858; *Ancient Landmarks of Bath*, by C. E. Davis; Wright's *Hist. Guide to Bath*, 1864; Earle's *Guide to Bath*, 1864; Lyell's *Inaugural Address before Brit. Assoc.*, 1864; Sir G. Jackson's *Archives of Bath*, 2 vols., 1873; Peach, *Rambles about Bath*, 1875; Scarth, *Aquæ Solis, or Notices of Roman Bath*, 1864.

BATH, a city and port of the United States of North America, chief town of the county of Sagadahock in Maine. It is situated on the W. bank of the Kennebec, about twelve miles from the sea, and forms a station on the branch railway from Brunswick to Rockland. The prosperity of the town depends almost entirely on its shipping and fisheries; and its manufacturing industries are nearly all auxiliary to the one department of shipbuilding, in which it competes with the chief American centres of the trade. It has a fine custom-house built of granite. The city was settled in 1756, incorporated in 1780, and raised to the rank of a city in 1850. Population (1870), 7371.

BATH, KNIGHTS OF THE. See HERALDRY and KNIGHTHOOD.

BATHGATE, a town of Scotland, in the county of Linlithgow, 19 miles from Edinburgh, and 26 from Glasgow, with both which it has direct communication by railway. The town is irregularly built, and has no buildings of importance except a well-endowed academy. The district is rich in limestone, coal, shale, and ironstone, which afford employment to a large part of the population. Paraffin and chemicals are extensively manufactured, and there are glass-works and flour-mills. Population (1871), 4491.

BATHS. In the ordinary acceptation of the word a bath is the immersion of the body in a medium different from the ordinary one of atmospheric air, which medium is usually common water in some form. In another sense it includes the nature of the different media that may be used, and of the various arrangements by which they are applied. Perhaps the simplest method of presenting a general view of the whole subject is first to give an outline of the history of baths in all ages, and next to give some account of the principles on which baths act on the human system.

*Ancient Baths.*—Bathing, as serving both for cleanliness and for pleasure, has been almost instinctively practised by nearly every people. The most ancient records mention bathing in the rivers Nile and Ganges. From an early period the Jews bathed in running water, used both hot and cold baths, and employed oils and ointments. So also did the Greeks; their earliest and commonest form of bathing was swimming in rivers, and bathing in them was practised by both sexes. Warm baths were, according to Homer, used after fatigue or exercise. The Athenians appear for a long time only to have had private baths, but afterwards they had public ones: the latter seem to have originated among the Lacedæmonians, who invented the hot-air bath, at least the form of it called after them, the *Laconicum*. Although the baths of the Greeks were not so luxurious as those of some other nations, yet effeminate people were accused among them of using warm baths in excess; and the bath servants appear to have been rogues and thieves, as

in later and larger establishments. The Persians must have had handsomely equipped baths, for Alexander the Great admired the luxury of the baths of Darius.

But the baths of the Greeks, and probably of all Eastern nations, were on a small scale as compared with those which eventually sprung up among the Romans. In early times the Romans used after exercise to throw themselves into the Tiber. Next, when ample supplies of water were brought into the city, large *piscinæ*, or cold swimming baths, were constructed, the earliest of which appear to have been the *piscina publica* (312 B.C.), near the Circus Maximus, supplied by the Appian aqueduct, the *lavacrum* of Agrippina, and a bath at the end of the Clivus Capitolinus. Next, small public as well as private baths were built; and with the empire more luxurious forms of bathing were introduced, and warm became far more popular than cold baths.

Public baths or *balneæ* were first built in Rome after Clodius brought in the supply of water from Præneste. After that date baths began to be common both in Rome and in other Italian cities; and private baths, which gradually came into use, were attached to the villas of the wealthy citizens. Mæcenus was one of the first who built public baths at his own expense. After his time each emperor, as he wished to ingratiate himself with the people, lavished the revenues of the state in the construction of enormous buildings, which not only contained suites of bathing apartments, but included gymnasia, and sometimes even theatres and libraries. Such enormous establishments went by the name of *thermæ*. The principal *thermæ* were those of Agrippa 21 B.C., of Nero 65 A.D., of Titus 81, of Domitian 95, of Commodus 185, of Caracalla 217, and still later those of Diocletian 302, and of Constantine. The technical skill displayed by the Romans in rendering their walls and the sides of reservoirs impervious to moisture, in conveying and heating water, and in constructing flues for the conveyance of hot air through the walls, was of the highest order.

The Roman baths contained swimming baths, warm baths, baths of hot air, and vapour baths. The chief rooms (which in the largest baths appear to have been mostly distinct, whereas in smaller baths one chamber was made to do duty for more than a single purpose) were the following:—(1.) The *apodyterium* or *spoliatorium*, where the bathers undressed; (2.) the *aliptherium* or *unctuarium*, where oils and ointments were kept (although the bathers often brought their own pomades), and where the *aliptra* anointed the bathers; (3.) The *frigidarium* or cool room, *cella frigida*, in which usually was the cold bath, the *piscina* or *baptisterium*; (4.) The *tepidarium*, a room moderately heated, in which the bathers rested for a time, but which was not meant for bathing; (5.) The *calidarium* or heating room, over the *hypocaustum* or furnace; this in its commonest arrangement had at one end a warm bath, the *alveus* or *calida lavatio*; at the other end in a sort of alcove was (6.) The *sudatorium* or *laconicum*, which usually had a *labrum* or large vessel containing water, with which bathers sprinkled themselves to help in rubbing off the perspiration. In the largest baths the laconicum was probably a separate chamber, a circular domical room with recesses in the sides, and a large opening in the top; but there is no well-preserved specimen, unless that at Pisa may be so regarded. In the drawing of baths from the *thermæ* of Titus (fig. 1), the laconicum is represented as a small cupola rising in a corner of the calidarium. It is known that the temperature of the laconicum was regulated by drawing up or down a metallic plate or *clypeus*. Some think that this *clypeus* was directly over the flames of the hypocaustum, and that when it was withdrawn, the flames must have sprung into the laconicum. Others, and apparently they have Vitruvius on their side, think that the *clypeus* was

drawn up or down only from the aperture in the roof, and that it regulated the temperature simply by giving more or less free exit to the hot air. The question must for the present remain unsettled;—if the laconicum was only one end of the calidarium, it is difficult to see how that end of the room was kept so much hotter than the rest of it; on the other hand to have had flames actually issuing from the laconicum, must have caused smoke and soot, and have been very unpleasant. The most usual order in which the rooms were employed seems to have been the following, but there does not appear to have been any absolute uniformity of practice then, any more than in modern Egyptian and Turkish baths. Celsus recommends the bather first to sweat a little in the tepidarium with his clothes on, to be anointed there, and then to pass into the calidarium; after he has sweated freely there he is not to descend into the solium or cold bath, but to have plenty of water poured over him from his head,—first warm, then tepid, and then cold water,—the water being poured longer over his head than on the rest of the body; next to be scraped with the strigil, and lastly to be rubbed and anointed.

The warmest of the heated rooms, i.e., the calidarium and laconicum, were heated directly from the hypocaustum, over which they were built or suspended (*suspensura*); while from the hypocaustum tubes of brass, or lead, or pottery carried the hot air or vapour to the walls of the other rooms. The walls were usually hollow, so that the hot air could readily circulate.

The water was heated ingeniously. Close to the furnace, about 4 inches off, was placed the *calidarium*, the copper (*ahenum*) for boiling water, near which, with the same interval between them, was the copper for warm water, the *tepidarium*, and at the distance of 2 feet from this was the receptacle for cold water, or the *frigidarium*, often a plastered reservoir. A constant communication was kept up between these vessels, so that as fast as hot water was drawn off from the calidarium a supply was obtained from the tepidarium, which, being already heated, but slightly reduced the temperature of the hotter boiler. The tepidarium, again, was supplied from the frigidarium, and that from an aqueduct. In this way the heat which was not taken up by the first boiler passed on to the second, and instead of being wasted, helped to heat the second—a principle which has only lately been introduced into modern furnaces. In the case of the large *thermæ* the water of an aqueduct was brought to the *castellum*, or top of the building, and was allowed to descend into chambers over the hypocaustum, where it was heated and transmitted in pipes to the central buildings. Remains of this arrangement are to be seen in the baths of Caracalla. The general plan of such buildings will be more clearly understood after an examination of the accompanying illustrations. In the

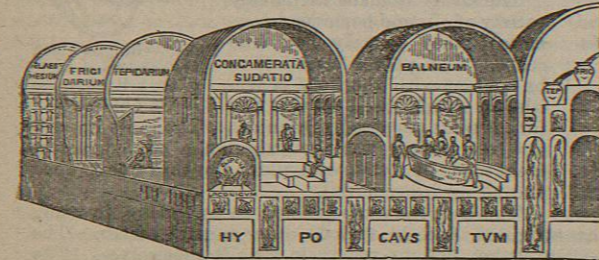


FIG. 1.—Roman Baths.

well-known drawing (fig. 1) found in the baths of Titus, the name of each part of the building is inscribed on it. The small dome inscribed laconicum directly over the furnace, and having the *clypeus* over it, will be observed in the corner

of the chamber named *concamerata sudatio*. The vessels for water are inscribed, according to their temperature, with the same names as some of the chambers, *frigidarium*, *tepidarium*, and *calidarium*.

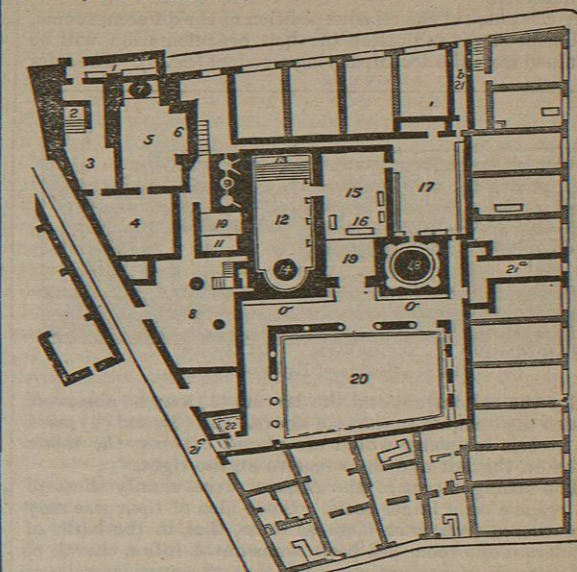
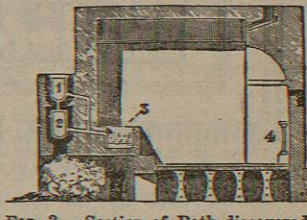


FIG. 2.—Ground-Plan of the Baths of Pompeii.

The baths of Pompeii (as shown in fig. 2) were a double set, and were surrounded with *tabernæ* or shops, which are marked by a lighter shade. There were streets on four sides; and the reservoir supplying water was across the street in the building on the left hand of the cut. There were three public entrances—21a, 21b, 21c—to the men's baths and one to the women's. The furnaces (9) heated water, which was conveyed on one side to the larger baths of the men, on the other to the women's. Entering from the street at 21c there was a *latrina* on the left hand (22). From this it was usual to proceed to a court (20) surrounded by pillars, where servants were in attendance. There is some doubt as to the purpose to which the room (19) was devoted. Leaving the hall a passage conducted to the *apodyterium* or dressing-room (17), at one end of it is the *frigidarium*, *baptisterium*, or cold plunge bath (18). Entering out of the *apodyterium* is the *tepidarium*, or warming-room (15), which most probably was also used as the *aliptherium* or anointing-room. From it bathers passed into the hot room or *calidarium* (12), which had at one end the *alveus* or *calida lavatio* (13), at the other end the *labrum* (14). This end of the calidarium served as the laconicum. The arrangements of the women's baths were similar, but on a smaller scale. The calidarium (5) had the *labrum* (7) at one end, and the *alveus* (6) was in one side of the room. The general arrangements of a calidarium are well illustrated by the accompanying section (fig. 3) of a bath discovered at



Tusculum. The disposition of the parts is the same as at Pompeii. We here have the calidarium supported on the pillars of the *forax*, the *suspensura*. The *alveus* (3) is



at one end, and the labrum (4) at the other. (1) and (2) are the vessels for water over the fornax; and the passages in the roof and walls for the escape of heated air will be observed.

A clear idea of the relative position of the different rooms, and some slight indication of their ornamentation, will be obtained from the accompanying woodcut (fig. 4). The flues

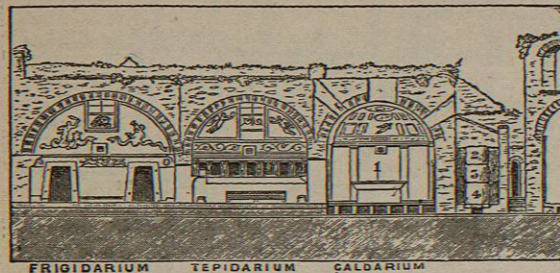


FIG. 4.—Section of Baths of Pompeii.

under the caldarium and the labrum (1) may be observed, as also the opening in the roof above. (2), (3), and (4) mark the vessels for water which are placed between the men's baths on the left and the women's on the right.

The arrangements of the *thermæ* were mainly those of the *balneæ* on a larger scale. Some idea of their size may be gathered from such facts as these, that in the baths of Diocletian one room has been transmuted into a church of most imposing proportions, and that the outside walls of the baths of Caracalla extend about a quarter of a mile on each of the four sides. A visit to the remains of the baths of Titus, of Diocletian, or of Caracalla impresses the mind strongly with a sense of the vast scale on which they were erected, and Ammianus's designation of them as provinces appears scarcely exaggerated. It is said that the baths of Caracalla contained 1600, and those of Diocletian

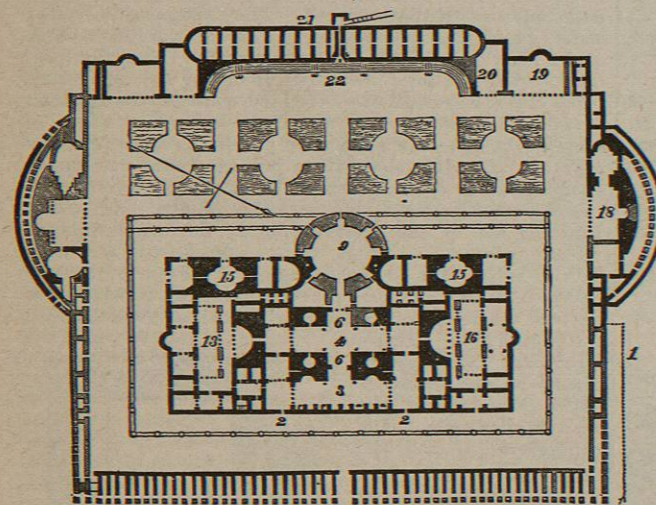


FIG. 5.—Ground-Plan of the Baths of Caracalla.

3200 marble seats for the use of the bathers. In the largest of the *thermæ* there was a stadium for the games of the young men, with raised seats for the spectators. There were open colonnades and seats for philosophers and literary men to sit and discourse or read their productions aloud, or for others to discuss the latest news. Near the porticoes, in the interior open space, rows of trees were

planted. There was a *sphaeristerium*, or place for playing ball, which was often over the apodyterium; but it must be confessed that the purposes of many portions of these large edifices have not been made out in as satisfactory a way as those of smaller baths. A more definite idea of the *thermæ* can be best got by an examination of the accompanying plan of the baths of Caracalla (fig. 5). A good deal of the plan is conjectural,—the restorations being marked by lighter shading.

At the bottom of the plan is shown a long colonnade, which faces the street, behind which was a series of chambers, supposed to have been separate bathing-rooms. Entering by the opening in its centre, the visitor passes what was probably an inner colonnade round the main building. Passing in by either of the gates (2, 2), he reaches the large chamber (3), which has been variously called the natatio or large swimming bath, or the tepidarium. The great central room (4) in all probability was the caldarium, with two labra (6, 6) on opposite sides, and with four alvei, one in each corner, represented by small circular dots. (9) has been regarded by some as the laconicum, although it appears very large for that purpose. The rooms (15, 15) have been variously described as baptisteria and as laconica. Most authors are agreed in thinking that the large rooms (13) and (16) were the *sphaeristeria*, or places for playing ball.

Returning to the outside, (1) and (18) and the corresponding places on the other side, are supposed to have been the *exedrae* for philosophers, and places corresponding to the Greek *xysti*. (20) and (19) have been considered to be servants' rooms. (22) was the stadium, with raised seats for the spectators. The space between this and the large central hall (9) was planted with trees, and at (21) the aqueduct brought water into the castellum or reservoir, which was on an upper story. There were upper stories in most portions of the building, and in these probably were the libraries and small theatres.

The magnificence of many of the *thermæ* and their luxurious arrangements were such that some writers, as Seneca, are quite lost in their descriptions of them. The *piscinæ* were often of immense size,—that of Diocletian being 200 feet long,—and were adorned with beautiful marbles. The halls were crowded with magnificent columns, and were ornamented with the finest pieces of statuary. The walls, it has been said, were covered with exquisite mosaics that imitated the art of the painter in their elegance of design and variety of colour. The Egyptian

syenite was encrusted with the precious green marbles of Numidia. The rooms contained the works of Phidias and Praxiteles. A perpetual stream of water was poured into capacious basins through the wide mouths of lions of bright and polished silver; water issued from silver, and was received on silver. "To such a pitch of luxury have we reached," says Seneca, "that we are dissatisfied if we do not tread on gems in our baths."

The richer Romans used every variety of oils and pomades (*smegmata*); they scarcely had true soaps. The poorer class had to be content with the flour of lentils, an article used at this day for the same purpose by Orientals. The most important bath utensil was the strigillus, a curved instrument made of metal, with which the skin was scraped and all sordes removed.

The bath servants assisted in anointing, in using the strigillus, and in various other menial offices. The poorer classes had to use their strigils themselves. The

<sup>1</sup> The figure represents four strigils, in which the hollow for collecting the oil or perspiration from the body may be observed. There is also a small ampulla or vessel containing oil, meant to keep the strigils smooth, and a small flat patera or drinking vessel, out of which it was customary to drink after the bathing was finished.

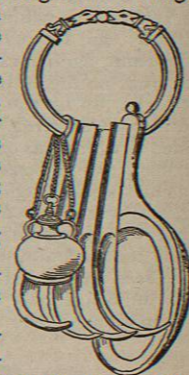


FIG. 6.—Ring on which are suspended some of the articles in use in the Alipiterium.

various processes of the *alipitæ* seem to have been carried on very systematically.

The hot baths appear to have been open from 1 P.M. till dark. It was only one of the later emperors that had them lighted up at night. When the hot baths were ready (for, doubtless, the plunge baths were available at an earlier hour), a bell or *æs* was rung for the information of the people. Among the Greeks and Romans the eighth hour, or 1 o'clock, before their dinner, was the commonest hour for bathing. The bath was supposed to promote appetite, and some voluptuaries had one or more baths after dinner, to enable them to begin eating again; but such excesses, as Juvenal tells us, occasionally proved fatal. Some of the most effeminate of the emperors are said to have bathed seven or eight times in the course of the day. In early times there was delicacy of feeling about the sexes bathing together; even a father could not bathe with his sons, but latterly, under most of the emperors, men and women often used the same baths. There frequently were separate baths for the women, as we see at Pompeii, or at Badenweiler; but although respectable matrons would not go to public baths, promiscuous bathing was common during the empire.

The public baths and *thermæ* were under the more immediate superintendence of the *ædiles*. The charge made at a public bath was only a quadrans or quarter of an as, about half a farthing. Yet cheap though this was, the emperors used to ingratiate themselves with the populace, by making the baths at times gratuitous.

Wherever the Romans settled, they built public baths; and wherever they found hot springs or natural stuffs, they made use of them, thus saving the expense of heating, as at the *myræta* of Baia, or the *aquæ solis* of Bath. In the cities there appear to have been private baths for hire, as well as the public baths; and every rich citizen had a set of baths attached to his villa, the fullest account of which is given in the *Letters* of Pliny, or in Ausonius's *Account of a Villa on the Moselle*, or in Statius's *De Balneo Etrusco*. Although the Romans never wholly gave up cold bathing, and that practice was revived under Augustus by Antonius Musa, and again under Nero by Charmis (at which later time bathing in the open sea became common), yet they chiefly practised warm bathing (*calida lavatio*). This is the most luxurious kind of bathing, and when indulged to excess, is enervating. The women were particularly fond of these baths, and were accused, at all events in some provincial cities, of drunkenness in them.

The unbounded licence of the public baths, and their connection with modes of amusement that were condemned, led to their being to a considerable extent proscribed by the early Christians. The early fathers wrote that bathing might be practised for the sake of cleanliness or of health, but not of pleasure; and Gregory the Great saw no objection to baths being used on Sunday. About the 5th century many of the large *thermæ* in Rome fell into decay. The cutting off of the aqueducts by the Huns, and the gradual decrease of the population, contributed to this. Still it is doubtful whether bathing was ever disused to the extent that is usually represented. It was certainly kept up in the East in full vigour at Alexandria and at Brusa. Hot bathing, and especially hot air and vapour baths, were adopted by the Mahometans; and the Arabs brought them with them into Spain. The Turks, at a later time, carried them high up the Danube, and the Mahometans spread or, it may be more correct to say, revived their use in Persia and in Hindustan. The Crusaders also contributed to the spread of baths in Europe, and hot vapour baths were specially recommended for the leprosy so prevalent in those days. After the commencement of the 13th century there were few large cities in Europe without hot vapour baths.

We have full accounts of their regulations,—how the Jews were only allowed to visit them once a week, and how there were separate baths for lepers. In England they were called hothouses. Erasmus, at the date of the Reformation, spoke of them as common in France, Germany, and Belgium; he gives a lively account of the mixture of all classes of people to be found in them, and would imply that they were a common adjunct to inns. They seem after a time to have become less common, though Montaigne mentions them as being still in Rome in his day. In England the next revival of baths was at the close of the 17th century, under the Eastern name of Hummuns, or the Italian name of Bagnios. As these, like more recent revivals of them, were avowedly on the principle of the Turkish baths, that species of bath must be briefly noticed. But before doing so, we must observe that there were several considerable epochs in the history of baths, one in the commencement of the 18th century, when Floyer and others recalled attention to cold bathing, of which the virtues had long been overlooked. In the middle of the century also, Russell and others revived sea-bathing in England, and were followed by others on the Continent, until the value of sea-bathing became fully appreciated. Later in the same century the experiments of Currie on the action of complete or of partial baths on the system in disease attracted attention; and though forgotten for a while, they have borne abundant fruit in more recent times.

*Modern Baths.*—It is uncertain how far the Turkish and Egyptian and even the Russian baths are to be regarded merely as successors of the Roman baths, because the principle of vapour baths has been known to many nations in a very early period of civilization. Thus the Mexicans and Indians were found using small vapour baths. The ancient inhabitants of Ireland and of Scotland had some notion of their use, and the large vapour baths of Japan, now so extensively employed, are probably of independent origin. We extract at some length accounts of Turkish and of Russian baths, as they illustrate the practices of the ancient Roman and of modern Turkish baths. The first is taken from Lane's work *On the Modern Egyptians*:—"The building consists of several apartments, all of which are paved with marble, chiefly white. The inner apartments are covered with domes, which have a number of small glazed apertures for the admission of light. The bather, on entering, if he has a watch or purse, gives them in charge to the keeper of the bath. The servant of the bath takes off his shoes, and supplies him with a pair of wooden clogs. The first apartment has generally three or four *leewans* (raised parts of the floor used as couches) cased with marble, and a fountain of cold water, which rises from an octagonal basement in the centre. One of the *leewans*, which is meant for the higher classes, is furnished with cushions or mats.

"In warm weather bathers usually undress in this room; in winter they undress in an inner room, called the *bey-towwal*, or first chamber, between which and the last apartment there is a passage often with two or three latrines off it. This is the first of the heated chambers. It generally has two raised seats. The bather receives a napkin in which to put his clothes, and another to put round his waist; this reaches to the knees, a third, if he requires it, is brought him to wind round his head, leaving the top of it bare; a fourth to put over his chest, and a fifth to cover his back. When the bather has undressed, the attendant opens to him the door of the inner and principal apartment. This in general has four *leewans*, which give it the form of a cross, and in the centre a fountain of hot water rises from a small shallow basin. The centre room, with the adjoining ones, forms almost a square. The *beytowwal*