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The small Trades of the Caucasus

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Me Kong, against any advance by the French. Perhaps it may be objected that it is improbable that the French would wish to acquire fresh territory. The reply in disproof of this would be their past and present conduct, whilst with regard to their future policy, the Tonkinese newspapers, the writings of M. de Lanessan, the present Governor of French Indo-China, the speech of M. Ribot recently delivered in the French Chamber, and, in short, many openly avowed declarations, show their intention to secure, as a minimum, all territories to the east of the Me Kong.

It would appear from the papers that south of Luang Prabang this policy has already been put into effect. But whether it has or not, it is sure of accomplishment; nor when it comes to the point are the Siamese likely to resist it. From the Annam coast, this last dry season, two or three expeditions were surveying, and searching for routes to the Me Kong. Shortly before I reached Dien Bien Phu, an officer had left to see if the country were suitable for a telegraph to Luang Prabang; and this would be an alternative wire, as the King of Siam has already authorised one to be laid from Bangkok. The French idea is that Luang Prabang can be made the centre for attracting the trade of Chieng Mai and the Shan States. The carrying of goods by the Me Kong may be considered impracticable. The Black River would be the only other means of transit. The expense would be enormous, and utterly futile against British competition from Burma. This, however, would not deter the French, and the opening of a trade route in that direction would make the Shan States, by their proximity, a more important market. Therefore it concerns us to watch closely any French movements west of Luang Prabang. Last year Messrs. Macey and Massy entered the Sibsong Pana with a view of establishing commercial relations with the different states, whilst M. Pavie, accompanied by a large retinue, visited Chieng Hong, the capital. Unfortunately there is no map to show clearly the geographical features, or it would be easier to bring home to the minds of the public, that the watershed of the Me Kong and Nam Doo would most fairly mark the respective spheres of influence of Great Britain and France, and would be the best guarantee against any possible friction. As a step towards securing this, it is desirable that the Indian Government should be urged to undertake the entirely legitimate responsibility of a protectorate over Chieng Kheng.

THE SMALL TRADES OF THE CAUCASUS.

BY VICTOR DINGELSTEDT,

Hon. Corr. Member R.S.G.S.

THE Caucasus possesses great natural resources, which were known in ancient times and attracted to it the enterprising nations of the Old World. The eastern shore of the Black Sea was studded with Greek

colonies, and the Argonauts' expedition, though, perhaps, only legendary, shows the importance attached to the wealth of this country by the brilliant predecessors of modern civilisation. In later times it has not been the fate of the Caucasus to become, like Switzerland, a seat of prosperous industrial communities capable of utilising its natural resources. It has been the home of warlike tribes and the theatre of sanguinary conflicts between the powerful nations who aspired to possess it. The pacification of the Caucasus is of quite recent date, for its subjugation by Russia was only completed in 1864.¹ No wonder, then, that in our days so much has been heard of the courage of its inhabitants and so little of its industrial activity. A brighter prospect, however, is probably in store for the Caucasus. This splendid country is suited for the cultivation of all kinds of cereals and of some important industrial plants, such as cotton, madder, castor-beans, etc.; it has soils favourable for vines, mulberry, and beetroot, and extensive grass-lands for cattle and horse-breeding, and its beautiful forests and rich mines of petroleum, silver, copper, sulphur, etc., offer attractions to enterprising companies and individuals. To these natural advantages must be added an intelligent population, that requires only to be instructed and more thoroughly protected from brigands in order to compete with those of other lands in useful arts. One of the Caucasian industries, viz., the extraction of petroleum, has already attained a considerable development in a relatively short time.² Viticulture also is extending as the Caucasian wines become known in Russia, and such is the case, to a less degree, with sericulture. But the industrial energies of the people have been too long kept in abeyance to show at once any marked activity. There are as yet too many obstacles to such progress, and until they are removed the country can hardly aspire to take, in the industrial world, the place which its natural resources must ultimately gain for it. Besides ignorance, with its attendant aversion to change and breach of faith, besides insecurity, want of credit, and adequate means of communication, which retard progress in every direction, there are obstacles peculiar to each branch of industry, which it would be beside my purpose to enumerate.

Caucasian industries may be classified in two groups:—staple industries and petty or home industries. Except Baku, which has an important mining industry, the Caucasus is an exclusively agricultural and pastoral country; its urban population, in respect of its occupations, does not much differ from the rural. Towns are the seats of the judicature and civil administration; in them also markets are held, but their inhabitants, unless they happen to be merchants or officials, cultivate the soil, breed cattle, and rear horses like the villagers. As these occupations leave a large portion of time unoccupied, and barely yield the necessaries of life, the peasants supplement them by petty home industries. It is of these that I purpose to treat in this paper, with the view of giving the reader some idea of the habits of the Caucasians and their general culture.

¹ Some details about the latest stage of the struggle are given in my paper, *S.G.M.* vol. v., p. 367.

² The quantity of petroleum extracted amounted, in 1890, to 600,000 tons.

During my stay in the Caucasus, about five years ago, I had the good fortune to initiate the investigation of these petty industries. In consequence of my report on the subject, read before the Caucasian Agricultural Society, Mr. Janovsky, Superintendent of Public Instruction, conceived the idea of intrusting to his numerous subordinates (school-masters, scattered over the whole country) the task of collecting information concerning the usual occupations of the people. The plan was carried out, and I have now before me a bulky illustrated volume, in which are collected the results of the observations made by the school-masters.¹ Though without special knowledge of industrial arts, they have been able to produce by their united efforts a fairly accurate and suggestive account of the occupations of the Caucasian peasants. There are, of course, no statistics; but as a contribution to the history of the development of industrial art an account of this kind is certainly not devoid of interest, for those especially who regard it from an ethnographical point of view. These small industries have an essentially domestic character, being pursued in the peasants' homes with the material at hand, and usually without any trade organisation. Supported for the most part by local demand, they are of no importance in the general commerce of the country, though some products, as, for instance, silver filigree work, woollen materials, and embroidery, might, with a higher degree of finish, become lucrative and acquire some reputation beyond the Caucasian frontier; but such are exceptions to the rule. All appliances and implements used in those industries are of the most primitive description, and factories and workshops are almost unknown, the work being done in huts, tents, in the fields, and in the street. The profit is ludicrously small. As at present there is no division of labour, an artisan generally carries on several trades at the same time, and is, naturally, proficient in none. A hatter is also a currier, a maker of sheepskin-coats, etc.; a mason is also a setter of stoves, tombstone maker, paviour, etc. In some branches of industry there are associations of workmen (*artel*), as, for instance, in masonry, carpentry, the manufacture of pottery, etc., and the members of these associations sometimes wander from place to place. No preventive measures are taken against the injurious effects of certain processes. "The destiny of man is unalterable," say the people, "and a man has no right to count the dead."

The nature of the small industries naturally varies with the raw material to be had in the neighbouring country. On the Black Sea coast, and generally in the western part of the Caucasus, there are different kinds of wood. The most appreciated are walnut, fir, and palm. The timber trade suffers from want of roads and the uselessness of the wild mountain torrents for the purposes of transport. Wool and skins are to be had in the eastern and southern parts of the country, where considerable flocks of sheep and herds of cattle graze on the elevated pasturages. Many nomad tribes, whose principal occupation is the breeding of cattle, excel in carpet-making. Cotton is planted on the plains of the Kura

¹ *Sbornik materialov dlia opissaniia miestnostey i plemën Kavkasa*, Tiflis 1891, 8vo, pp. 376+320.

and Araxes. Flax, hemp, and other textile plants are to be found here and there in small quantities. Madder grows in Daghestan, and oil-seed on the lowlands. Petroleum is extracted in many parts of the country, though it is found in greatest abundance on the Apsheron peninsula, and copper in the provinces of Tiflis and Elisavetopol; there is also sulphur in Daghestan; coals in the province of Kutais; and clay in various parts.

The second factor determining the particular forms of industry is the nature of the popular wants, and it is, perhaps, expedient in the next place to obtain some idea as to what those wants are. It is, of course, necessary to distinguish between highlanders and lowlanders, between nomads and fixed communities, between the inhabitants of those parts of the country where the climate is dry, the forests few, and the cold intense, and those of other parts where humidity prevails, the forests are extensive, and the winters temperate. All these different conditions of existence will certainly produce corresponding divergencies in habits, and cause different articles to be regarded as necessities of life; but these divergencies are less important than one would be disposed to imagine. Those Caucasians who retained their migratory manner of life, dwell, according to the seasons, on the plains or in the mountains, and, thus migrating from one part of the country to another, they have learned to adapt themselves to changes of climate and physical surroundings, and the very variety of their experiences has produced a uniformity in customs and habits. There is, besides, at work the levelling influence of an almost identical degree of culture, which circumstance has produced, even between Mohammedans and Christians, a resemblance in manners, habits, and the necessities of life. I will consider these necessities in connection with the industries to which they give rise in the following order:—(a) Food; (b) Dwellings; (c) Clothes; (d) The dressing of leather and fur; (e) Tailoring and embroidery; (f) Arms and smith's-work; (g) Pottery and basket-making; (h) Working in wood; (i) Fuel and light.

Food.—It is not my purpose to speak here of industries connected with the actual production of food-stuffs, such as agriculture and cattle-breeding, which are staple industries; but I will only make some remarks on the usual style of living and the preparation of food for table. The Caucasians must be admitted to be a temperate and sober people. There are many who eat only once a day, and even then very often moderately. Among the rich people the meal consists of a mutton broth flavoured with saffron, called *tchakhlyrtina*, a leg of mutton roasted on the spit (*shashlyk*), different preparations of rice, cheese, fruit, and bread. The bread is unleavened, and baked in the form of a flat cake about 60 centimètres long and 30 broad; it serves also as a napkin. Sweetmeats are reserved for feast-days. Christians drink freely of home-made wine, while Musulmans consume divers fruit-waters. Among poor people the daily meal consists often of bread, fruit, and cheese only. In Western Caucasus bread is prepared from maize. Thus, cheese, bread, and fruit are the most important articles of food. Cheese, mostly of an inferior quality, is prepared by Armenians, Tartars and Kurds during their stay in the mountains; this work occupies the women. One pound (36

lbs.) of cheese is to be had in Novobayaset, one of the centres of cattle-breeding, at the price of 1·80 to 2 roubles. The milk of sheep, cows, and bisons is used in its preparation. Butter is made chiefly for sale in the towns; 36 lbs. of butter fetch 10 roubles. A large variety of delicious fruits grows in the Caucasus, and a considerable quantity of dried fruit is imported from Persia. The cereals (maize and wheat) produced in the Caucasus are more than sufficient for local wants, and, therefore, a surplus remains for exportation.

Dwellings.—Caucasians dwell, as a rule, in miserable homes, and there are still some nomad tribes, who, having no fixed abodes, dwell in tents or caverns. The ordinary one-roomed cottage (*saklya*) is built in the mountains of unhewn stone, laid without cement, on the plains of *adobé*, in a most primitive fashion. A hole in the earthen floor in the centre of the room serves as a hearth, and the smoke escapes through an aperture left in the flat clay roof. Men and animals often herd together. The construction of such a dwelling does not require professional masons, who, mostly Persians or Italians, find employment in the towns. Persian masons arrive in crowds during the warm season, and on the approach of winter return home with their earnings. Besides building private dwellings, they construct warehouses, lay pavements, quarry stone and fashion it into millstones, tombstones, etc. Bricks are seldom used except for warehouses, though unbaked bricks are often employed as material for houses where stone is scarce. The usual wages of a professional mason vary, according to his proficiency, from one to two roubles a day (two to four shillings).

Clothing.—The Caucasian is fond of dress, and, though he neglects home comforts, is by no means indifferent as to his personal appearance. Objects of value he may possess, but he lays little store by anything except clothes, arms, and ornaments, which he can carry on his person. The costume is rich, many-coloured, and highly picturesque, and each tribe has preserved a distinctive style. The nomads prefer large floating dresses in shades of red, while the highlanders, on the contrary, wear tightly-fitting garments, which show off their fine figures to greater advantage. Most of the men wear an under-vest of printed calico, a jacket or tunic (*beshmet*) of silk, wool or calico (with a standing collar and fastened by hooks), and large pantaloons (*shalvar*) of wool or velvet. Above the *beshmet*, descending to the knees and closely enveloping the body, is worn the picturesque *tcherkesse*, a long gown with hanging sleeves slit up to the shoulder, and a long row of metal shot cases on each side of the breast; at the neck the garment is thrown open a little. Underneath the *tcherkesse*, which, according to the season, is of wool, silk, or calico, a belt, embroidered with gold or silver, is tightly laced round the waist of the *beshmet*. From this belt are suspended poniards (*kinjal*), with richly decorated hilts. In cold or wet weather this attire is completed by a large sleeveless felt mantle (*burka*) thrown over one shoulder, a long gun being suspended upon the other shoulder, and by a high lambskin cap (*papakha*) upon the head. There is, however, a great variety of head-coverings, from a small light cap of embroidered stuff perched on the top of the head, to a tall astrachan hat about 7 lbs.

in weight. The feet are encased in woollen socks and leather slippers. Boots are as yet adopted only by those who have been in Moscow or St. Petersburg, and pride themselves on their superior refinement. The women's costume is still more ornamental. Over underclothing of printed calico, the Georgians wear a short silk or woollen jacket (*gulispiri*), usually embroidered with silk, gold, or silver thread, and low at the breast and shoulders. Above the *gulispiri* is worn, by rich and poor alike, a gown descending behind to form a train, and also opened on the breast, where a quantity of ornaments hang. A long and broad silk sash of bright colour confines the waist. Over the gown is thrown a kind of mantle (*catiba*), corresponding to the men's *tcherkesse*; it is richly embroidered on the front, and is edged all round with fur. Velvet is the material preferred for the *catiba*. On the head the Georgian women wear a small crown-shaped hat (*tasakrava*), broader at the front where it is embroidered; to the back is attached a long white muslin veil. The small feet are clothed with wool or thread stockings and embroidered slippers, not very easy to walk in. It would take too long to describe the numerous tribal peculiarities in female dress, but it should, however, be noticed that Armenian and Tartar women appear in the streets covered from head to foot, the former with a white calico *tchadra*, the latter with a *tchadra* of blue cotton cloth (*bias*).

Some Armenian women conceal the lower part of the face with a white bandage. As may be concluded from the above, the greatest number of small industries are connected with dress. We will now shortly consider these industries, viz., the manufacture of silken, woollen, cotton, and linen goods, the preparation of leather and fur, hat-making, dyeing, and tailoring. Spinning and weaving in wool occupies a foremost place, wool being one of the principal raw products of the country. Nor is this material confined to dress, but it is also largely employed for carpets and cushions, which constitute almost the sole house furniture, and tents, which are so indispensable in a semi-nomad life. There are no woollen manufactories proper, so that all woollen materials which native labour is unable to supply are imported from Russia or other parts of Europe. Owing to the high duties imposed on foreign wool and the prohibition of its importation into Persia through the Caucasus, Russian manufacturers have a virtual monopoly in such goods. The greater part of the wool produced is employed for the weaving of carpets and saddle-bags (*kilim*). Carpet-weaving is properly the occupation of women, and there are few Tartar households where some kind of loom is not to be found.¹ Women pursue this industry not only for gain but also as a pastime; the profit is, indeed, quite unimportant. A female worker is satisfied when she can get from five to twelve kopecks (1½d. to 3d.) for her day's work of twelve hours. The carpets woven for sale have often a cotton woof.

The principal seat of this manufacture is Shusha, which has practically a monopoly in the art. Apprenticeship is surrounded with many

¹ Sometimes, for want of a loom, the warp is attached to a simple arrangement of wooden pins.

difficulties, owing to the deep distrust existing between Christians and Tartars. A Christian would object to sending one of the female members of his family to serve as apprentice in a Tartar family. Tartars, on the other hand, are averse to allowing their daughters to learn a trade, for a girl of ten years old is considered to be of marriageable age, and her parents are anxious to procure a husband for her at once. Carpet-weaving is an art introduced by the Tartars, who continue to maintain their superiority therein. Besides the obstacles to apprenticeship, the Christians find it also difficult to procure wool at a reasonable price. The flocks of sheep are owned by Tartars, and, in order to buy wool at a low price, it is necessary to visit their encampments during the shearing-time, an undertaking said to be attended with danger. Spring wool may be had in the camps for 2-3 roubles a pound (36 lbs.); autumn wool is sold at double that price, whereas, if bought from a broker, the former costs 5-6 roubles a pound, and the latter 7-8 roubles. The Tartars sell their wool in a filthy state, rolled up in the leaf of the animal. Before the wool is made into carpets it must be washed, carded, and spun into thread. The last process usually costs 10 kopecks ($3\frac{1}{2}$ d.) for a lb. of thread. Then comes the twisting and dyeing of the threads. The animal and vegetable dyes employed are good, the chief being madder, but the mineral colours are inferior, as, for instance, artificial alizarin. The carpets bear different names, and fetch different prices according to pattern and size: the *khaly*, a carpet used for the middle of a room and measuring 2 mètres broad and from 5 to 7 m. long, costs from 60 to 120 roubles. The *yan*, 1 mètre broad, is used to cover the floor between the walls and the carpet in the middle; two *yan* costs as much as one *khaly*. The term *ghiaba* includes all carpets the breadth of which is intermediate between those of the *khaly* and the *yan*. Besides these there is the *takhtustu*, a carpet 1·8 mètres broad, and 3 m. long which is hung on the wall above the sleeping-place, and the *jeinamaz*, a small carpet ($1\frac{1}{4}$ by $\frac{3}{4}$ m.) to kneel upon at prayers. The patterns are distinguished by the names of the natural objects they are supposed to represent, such as *balykh* (fish), *buta* (almond), etc.

Though the carpets of Shusha are considered the best in the Caucasus, they are inferior to the Persian and Tekke, the wool being of inferior quality. Nevertheless, they have of late been exported to St. Petersburg and Constantinople. It is approximately estimated that Shusha produces carpets to the value of £20,000 annually.

From carpets properly so called must be distinguished felts (*palassy*), which are of no great value. There are two kinds of *palassy*, the striped (*yerpalassy*) and the figured (*kilim*). A *palassy* costs usually half as much as a carpet of the same size. Weavers generally make carpets to order from material furnished by the customer.

Besides Shusha and its district, the manufacture is carried on in the following localities: Akhaltsykh, Gadrut (Jebrail district), Akhalkalaky, Kasapet (Jeranshid), Kubinsky district.

There are also the following kinds of woollen goods: cloth (*shali*), felt saddlebags, (*khurjeis*), carpet-bags (*maphrash*), hosiery, etc. Cloth of rough texture, 14 inches broad, is sold at from 20 to 50 kopecks the arshin (28 inches). Its production is very restricted. Felt is more ex-

tensively manufactured. For this article wool of inferior quality is employed. In felt-making men as well as women are engaged; this industry is sometimes regarded as a handy occupation for spare hours, while in other cases it absorbs the whole time of the family. According to quality felt is employed for *burka*, carpets, hats, saddlecloths, blankets, etc. The *burka*—a large mantle much worn by highlanders—is almost waterproof; to make it from three to six sheep are required, and it sells at from two to three roubles and more, according to the quality.

Druggets, hats, saddlecloths, and blankets of felt are in very general use, but Caucasian felt is not remarkable for its excellence, and this industry pays badly. In the Gadrut district of Jebrail a felt carpet of 650 square feet can be bought for eighty roubles, the cost of the material being about forty roubles, so that only forty roubles remain to remunerate five artisans for sixty days' work (about $13\frac{1}{3}$ kopecks a day for each workman). Felt is made in the same districts as carpets.

There is also an extensive manufacture of woollen hosiery, which gives occupation to the women in almost all parts of the country, and especially in Sharapan, Kutais, Ratcha, and certain Musulman districts. Nine pounds of raw wool are usually converted into about 1·8 pounds of thread, sufficient for eight pairs of stockings, which sell at forty to fifty kopecks a pair. One pound of woollen yarn being worth about twenty kopecks, about four kopecks only are left as a recompence for the labour of knitting a pair of stockings. Cotton and flax, after wool, are the most important material for clothing. The Caucasus should be able to satisfy its own demand for cotton goods, but, such are as yet the difficulties in the way of establishing manufactories, that the cotton grown in the country goes mostly to Moscow in order to return in the form of calico. Consequently it figures here rather as an object of cultivation than as material for manufacture. Though this cultivation is not one of the small industries I am describing, I may perhaps be allowed to say a word or two about it. It has never attained to any great development, though during the American war there was a good opportunity for considerable extension, had the Caucasian planters known how to avail themselves of it. Cotton plantations are as yet to be found only in the southern Trans-Caucasian districts—Erivan, Elisavetpol, Baku—in the plains of the Araxes and Kura. Should irrigation be extended and regulated, there may yet be found in the eastern Caucasus wide tracts, now unproductive, which are perfectly fit for cotton-growing. Native cotton is, however, not much appreciated, and some of the cotton worked in the Caucasus is grown in Central Asia and is imported from Moscow. As to the cotton manufacture, it is only in Akhaltsykh and Tiflis that it has any commercial importance. Elsewhere small quantities of yarn and a coarse stuff called *khami*, used for underclothing, are produced for local requirements. In Tiflis there is a small manufactory which prepares a sheeting called *bias*, employed for underclothing and *ichadra*. In Akhaltsykh the cotton—partly imported from Moscow—is worked into loose towels and spongy rubbers used by the Tartars in bathing. Here the workmen are dependent on the merchants, who, as a rule, supply the materials. A weaver earns from twenty-five to forty kopecks a day.

A piece of calico (2·5 arshin long by 1·25 broad) costs fifty to sixty kopecks; a sheet weighing about 0·9 pounds from 1 rouble to 1·20. The number of hands occupied in weaving cotton in villages is constantly decreasing, Moscow manufacturers being able to offer cotton cloth and printed calico superior to the loose and coarse native *khami* at lower prices. Of still less account is flax as a textile plant; it is indeed cultivated on a very small scale in the districts of Sukhum, Shemakha, as also in Erivan and Lenkoran, etc., but the material manufactured from it is too coarse to be employed for any other articles than bags. In Marasy (district of Shemakha) a mixture of linen and cotton called *carpinka* is made into shirts. The poud (36 lbs.) of linen yarn is worth from three to five roubles. In Erivan and the Musulman provinces flax is cultivated for the sake of its oil. Linseed-oil is sold in Shemakha at five to six roubles a poud.

Sericulture and silken goods.—Silk is largely used in the Caucasus for garments, bedding, and furniture. The rearing of silkworms is an occupation dating back to the remotest antiquity. They are known as Job's worms, an ancient tradition relating that the worms which attacked the patriarch were transformed into silkworms as a reward for his patience under suffering. The climate is very favourable to the growth of the mulberry, and in fact the tree flourishes in every part of Trans-Caucasus. Notwithstanding this, sericulture is far from being in a prosperous condition. It is, however, one of the most wide-spread industries, and enables the female part of the population to make a little addition to their comforts. With better methods, more knowledge, and fewer prejudices, this industry alone might make the fortune of many parts of the Caucasus; even as it is, it is not without importance. Silkworms are bred in all parts of the Trans-Caucasus, but especially in the districts of Kutais, Nukha, Geokchai, and Shemakha. The eggs are imported from France, Italy, and Japan, through the instrumentality of the local administrations and the Caucasian Agricultural Society, which is subsidised by the Government. Italian eggs cost about 70 kopecks for five grammes; they are often distributed gratuitously. Their vitality is often destroyed by transport, casualties on the way, and change of temperature. The usual time to rear silkworms is about the middle of April; the silk is obtained in from six to ten weeks. The eggs are hatched by women in the hollow of their armpits. There are no special buildings for the rearing of worms, but any unused covered space is considered suitable for the purpose. There are a multitude of superstitious rules which it is thought necessary to observe during the time of rearing to ensure success. It is scarcely necessary to mention that such rules, being dictated by ignorance, often produce the opposite effect, and very often the poor insect does not live long enough to spin its cocoon. Of course much depends upon the weather. Five grammes of eggs, if all goes well, will result in about 25 pounds of cocoons. In this case the enterprise is highly remunerative. But usually a great number of worms perish prematurely, and then the female worm-breeder is satisfied if her pains and patience are rewarded by a profit of a few roubles. Fresh cocoons are sold at 9 to 17 roubles the poud (36 lbs.); dry cocoons at about three times that price. To produce

one poud of raw silk from 20 to 22 pouds of fresh, or from 8 to 9 pouds of dry, cocoons are required. One poud (36 lbs.) of raw silk is valued at about 100 roubles (1 lb. at 2·75 r. to 2·52). There are no reliable statistics of the quantity produced, and I can only state that in some places, where the sericulture occupies the greatest number of hands, as, for instance, in Geoktchai, Jebraïl, and Nukha, the annual production of cocoons attains the respectable quantity of 1500 cwt.

There was formerly a considerable number of silk-mills of native construction; but recently they have been disappearing in all parts, and in their place silk-mills after European models, and worked by steam-power, have been erected. Such silk-mills exist now in Jebraïl, in Gad-rut, in Nukha, Ordubat, Akulis, Shusha, and other places. There are about twenty silk-mills in the districts of Shusha and Jebraïl. In some of them women are employed. A working day is from 14 to 16 hours; wages range from 20 to 30 kopecks a day; the sanitary conditions are most unsatisfactory. A considerable quantity of cocoons, raw silk, and filosele is exported to Russia, Persia, and Europe.

Some raw silk is woven on the spot in the primitive looms of the country. These home-made fabrics are known by different names, such as *daraja*, *kedji*, *tchesuntcha*, etc. Stockings, quilts, garters, purses, gloves, etc., are also made. Some of these goods meet with a certain appreciation at home, but they cannot compete with foreign productions, so that, though the Caucasian weaver values his time at next to nothing, their price cannot be maintained on the same level as that of such highly finished goods.

The Caucasian Administration is making considerable efforts to raise sericulture from the depression into which it has fallen during the last twenty years, in consequence of epidemics among the silkworms. Besides the distribution of sound eggs, instruction is given to youths in primary schools on the method of raising silkworms, and model institutions have been established.

The textile industries I have mentioned are by far the most important industries as regards the number of hands employed.

Leather and Fur-dressing.—Though the Caucasus is rich in flocks, the art of tanning is behindhand, and most of the leather is imported from Russia and Persia. Boots are as yet an article of luxury, most natives preferring small slippers, as being less expensive and more easily taken off on entering a place of worship or a drawing-room. Women wear no boots (except Russians), but slippers of Morocco leather. Shoe-leather is often dressed by Jews, and on that account the industry is considered by Musulmans as unclean. Workers in leather sometimes form associations (*artel*). The principal seats of leather-dressing are Alexandropol, Nukha, Elisavetpol, Marozy, Shusha, and others. There is a large tannery in Tiflis. A workman gets about five roubles a month. The price of a cowhide is from four to five roubles. Leather is used principally for shoes, saddlery, and *burjuk* (leather bottles). Shoes are made after the Asiatic and Russian fashions. In Alexandropol, where the trade is pretty large, one pair of Russian shoes costs, for men, from 4 to 6 roubles; for women, 2·50 to 4 roubles. The average annual earnings of a shoemaker

amount to about 280 roubles (about £28). Shoemakers are subject to consumption. Asiatic shoes, called *koshi* and *tchusty*, take the well-known form of Turkish slippers; one pair of *koshi* costs from 35 to 50 kopecks for women, and from 80 kopecks to 1·20 r. for men. Shoemakers, like many other Asiatic artisans, occupy small open shops in the market-places, where they sit cross-legged on a small bench.

Saddlery is pretty extensively made in the Caucasus, communication and the transport of goods being effected principally by means of horses, mules, and camels. Saddles are generally made of imported leather. The chief seats of saddle-making are Sukhum, Otchemtchiry, and Temirkhan-shura. Saddlers work in the same way as shoemakers, and their earnings are not much larger. In this trade there is division of labour; one man prepares the wood, another puts together the frame, a third covers it with leather, and a fourth adds the ornaments and other accessories. The saddles are of peculiar form, with high bows before and behind and short stirrups; they are always padded. The price of a saddle is from 20 to 60 roubles, and more, depending on the ornaments, which are sometimes of gold and silver. In Otchemtchiry saddles are made which fetch 5000 roubles. The annual earnings of an artisan are about 150 roubles.

In connection with the leather trade, a few words may be said about furriery. Leather-dressers usually prepare furs also, and make hats—fur hats, called *papakha*, being much in vogue among the Musulman portion of the population. As the Caucasus does not boast of good furs, sheepskin is the most common material used by furriers. Hats are made of fur and coats of sheepskin. There are, in consequence, two kinds of furriers—hatters and tailors in sheepskin. The best hats, astrachan, are made of fur imported from Bokhara and Shiraz. A *papakha* may cost from 70 kopecks to 17 roubles, according to the quality of the fur. A hatter earns annually from 100 to 250 roubles. The principal seats of this industry are in Alexandropol, Zakataly, the district of Akhalkalaky (Okkam), Shusha, Saliandy, etc.

An ordinary sheepskin coat costs from 3 to 6 roubles, the price of a skin being about 45 kopecks, so that the workman gets for his labour from 1 rouble 20 kopecks to 2 roubles 50 kopecks a coat, or from 25 kopecks to 30 kopecks for a day's work. Many highlanders wear sheepskin coats even in summer, and therefore the number of these garments produced is considerable. They are made wherever flocks of sheep are kept. Camel's hair is woven into two kinds of cloth, highly appreciated by the highlanders, Lesghian and *tiftik*.

Tailoring and Embroidery.—There are but few professional tailors; on the other hand, there are certainly few women who do not know something of needlework. Most tailors work only in winter, being engaged during the rest of the year in agriculture. A tailor earns about 30 kopecks a day. He is usually paid by the piece, and makes up the customer's own material. For an ordinary jacket the tailor gets about 1 rouble. Sewing-machines have been introduced into almost all parts of the country. There are some itinerant tailors, who work in the market-places. Ready-made clothes are bartered in the markets for

agricultural products, but usually tailors work only to order. Work-women are very badly remunerated. The Caucasians are very fond of embroidered clothes, and the needlework of the country has been famous for centuries. This industry is, however, declining, and it seems that Caucasians are becoming less fastidious about their dress. Embroidery is worked on velvet, silk, and woollen materials, with threads of silk, silver, and gold, and on morocco leather. It is mostly executed by women, but there are also skilful workmen, who embroider uniforms for Russian functionaries.

I have now to mention only one more industry connected with clothing, namely, dyeing. The cultivation of madder formerly constituted a staple industry in some provinces on the western shores of the Caspian, but the introduction of alizarin has partly ruined it. The dyeing of yarn for carpets is performed in a most primitive manner. The kind of dye, whether vegetable or mineral, depends on the destination of the carpet. If it be made to order or for home use, it is dyed with vegetable colour; if it be intended for sale, mineral dyes are used, which cost only 3 to 4 kopecks per ten grammes.

Arms.—After a handsome costume, the next things a true Caucasian cares for most are his weapons; and the manufacture of arms, especially side-arms, is an old-established industry. But, like so many other ancient arts, it is now declining, many famous armourers, who knew how to produce a weapon capable of cutting in two an iron bar of 0·3 inches diameter, having carried their secrets with them to the grave. However, the wearing of arms is still very general in the Caucasus, where nobody travels without a gun or dagger, and where even cooks and lackeys would consider it undignified to appear in public without *kinjal* (daggers). The best gunners and armourers are to be found in Daghestan (Temir-khan-shura), Nukha, Sukhum, Tiflis, etc. A good hand requires about one week to make a dagger. The price of a blade varies from 2 to 10 roubles. The sheath and hilt are usually ornamented. Those ornaments which embellish the belt to which the daggers are suspended are the work of gold- and silver-smiths, who had formerly a wide reputation in some parts of the Caucasus (Akhaltzykh). Many of these skilful craftsmen, however, emigrated into Turkey after the last war. I may here give a few details on other kinds of smiths' work. It is exercised principally in connection with agriculture, but smiths who work in copper and brass are also engaged in the production of ornaments and household utensils. As to agricultural wants, the villagers in some parts of the country are in the habit of engaging a professional smith to repair any agricultural implements at a moment's notice. In return for his services a plot of ground is allotted to him, which the villagers plough, sow, and reap for his benefit. The smith is also bound to shoe horses, bisons, and bulls. Some smiths make ploughs, sickles, scythes, and other implements, but these home products cannot bear comparison with articles imported from Russia and foreign countries, and so the native smiths are content to repair implements made by others. Indeed, their want of skill prevents the introduction of agricultural machinery. A heavy plough of native make costs from 40 to 50 roubles; a sickle

from 45 to 80 kopecks. The earnings of smiths are very variable, but a good workman can get one rouble for his day's work. Usually it is only during three or four winter months that a smith pursues his calling, there being no work for him in summer. Smiths in copper and other ores are to be found in Derbent and Alexandropol, but their trade is insignificant. There are copper mines in the Caucasus, but they are worked, very inefficiently, by Greeks. Moreover, copper is little used.

Pottery and Basket-making.—Most household utensils are of earthenware and basket-work. Pottery is a very ancient industry, in which women take a large share. Some of the vessels have curious forms, and others are of very large size, as wine-jars and bread-pitchers. No improved processes are ever introduced, and, indeed, there are even now potters who are ignorant of the art of glazing. In order to make a pot watertight, a bit of wax or pitch is melted and rubbed over the inside.

It is curious that the price of a pot is often determined by the quantity of wheat or maize it will contain. In the fabrication of some earthenware, pewter is mixed with the clay, as well as lead and glass reduced to powder. Pots are sometimes embellished with a variety of colours. In the production of this ware there are processes which masters are anxious to keep secret. A speciality of potters is the construction of *tandir*, a kind of stove in the form of a huge pitcher. The fire is made at the bottom, and slices of bread are placed round the inside to toast. In order to render the clay employed for *tandir* more cohesive, goat's wool is mixed with it. In many parts of the country, but especially in Tiflis, large pitchers are made, capable of containing about 500 litres of wine; these pitchers, buried in the ground, serve also for the storage of corn. The earnings of a potter are from 20 roubles to 100 roubles a year, seldom more. The better earthenware is imported from Russia, and the production of some kinds of ware, though Caucasus is rich in clay, is decreasing.

For gathering grapes, and other domestic uses, baskets are made from twigs of the willow, hazel, chestnut, oak, and other trees. This work, with which straw-plaiting is also combined, gives occupation to men and women, children and old people in many parts of the country. Sieves, also nets, cords, mats, etc., are made from bast fibres. Baskets of different forms cost 10 to 80 kopecks each.

Industries connected with Wood.—These flourish most in the western part of the Caucasus, where the forests are extensive; and here we meet with wood-cutters, sawyers, carpenters, joiners, turners, coopers, etc. Very often the same man is engaged in all these branches of industry, as well as those of a cartwright, box-maker, saddler, etc., but he is a Jack of all trades and master of none.

The woodcutters work hard for a trifling reward. By this occupation a family may get from 7 to 12 roubles a year. Sawyers are better off; they form co-operative associations, and during the season when there is no field-work they earn about 70 roubles each. Joiners and carpenters are, on the whole, still better remunerated, and yet some of the latter get only 20, or even 10, roubles a year. Carpenters usually

combine together into *artel*. Joiners are also glaziers, but they have not much work in this latter capacity, as in the villages mica or paper is often substituted for glass. Turners make house utensils, packsaddles, musical instruments (*balalaika*), chests, cradles, etc. This occupation is not particularly remunerative, the earnings of a turner being estimated at the modest sum of about 10 to 20 roubles a year. The little wood-carving that is executed in the Caucasus is of a very rough description. Coopers have but little work, as wine is usually preserved in ox-hides, and water in stone cisterns—seldom in casks.

Fuel and Light.—Lastly, I have to speak of the small industries which provide fuel and light. In the eastern part of the Caucasus and at great altitudes the cold is intense in winter, and combustibles are scarce or deficient. Well-to-do people buy wood (which is to be had at Tiflis at the price of 10 to 12 shillings a *klafter* (one cubic *sajene* of beech costs from 50 to 60 roubles), or charcoal, which is burnt in a pan called a *mangal*, and placed in the middle of the room, so as to allow all those present to warm their feet; but the majority of the people are obliged to burn dung. The first object which strikes the eye on entering a Caucasian village are the heaps of *kisiak* (dung for fuel), and the preparation of it is certainly one of the principal businesses of the inhabitants in the eastern and south-eastern parts of the country. Cattle-dung is spread in court-yards to the depth of about seven inches, and, after being moistened with urine, is allowed to dry. Then the layers are cut up into rectangular cakes (16 by 10 inches) and arranged in tall piles, so as to let the air circulate among them. A hundred cakes are sold at the price of 1 to 3 roubles, but every family must provide its own stock, as it often happens that this fuel is not to be had in the market at any price. Artificial light is of less importance than fuel, being liberally provided by almost inexhaustible wells of petroleum in different parts of the country, and especially in the peninsula of Apsheron. It is also naphtha which to a great extent supplies the want of fuel. But the extraction and utilisation of this important article is one of those great undertakings in which such capitalists as Rothschild and Nobel are interested, not one of the small industries with which we have to deal. To such belongs the fabrication of tallow candles, generally coloured, used by the Musulmans in their mosques. It is, however, steadily declining, and, were it not that the Moslems object to the use of petroleum lamps in their churches, would soon die out altogether. Candles are made of ox and mutton fat in the simplest fashion, without even a mould.

The last industry I have to mention is the fabrication of soap, into the composition of which enter mutton grease, lime, and potash. All the members of a family often co-operate in the manufacture; the process is very simple and rough. To 1 pound of grease are added 2 pounds of potash and as much of lime; from this mixture $1\frac{1}{2}$ pound of soap is obtained. A soapmaker earns 40 to 60 kopecks a day; the price of soap is 8 to 10 kopecks a pound. The better qualities are imported from Russia and other European countries. Some statisticians affirm that the quantity of soap per head used by a people is a good indication of its degree of civilisation. Having no statistics at hand, I cannot, unfortunately, judge of the

civilisation of Caucasians by this criterion, but I presume that they are not lavish in the use of soap, for I have never heard of any soapmaker becoming rich. Independently, however, of this soap-test, there is certainly no inducement to form a very high idea of the Caucasian civilisation as far as it is revealed by its industries; but it is only just to remind those who are inclined to form a judgment on these grounds, that in the present case we have to do with an Asiatic country, influenced by ideas of civilisation very different from those prevailing in Scotland. A Caucasian may feel as happy, or perhaps even happier, than other people whose wants are more numerous, and industries in a more advanced stage.

THE MAPPING OF THE UNITED STATES.

BY HENRY GANNETT,

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UNTIL recent years, the United States has been one of the most backward of all civilised nations in the matter of procuring good maps of its territory. Although, since the beginning of the century, geographic explorations or surveys have been carried on almost continuously, they have not been, until recently, prosecuted systematically, or under any comprehensive plan. The work done was carried on by various departments of the General Government, and under several State Governments; the methods of work and the scales differed widely, and the results were, in the main, fragmentary. The character of the work of these different organisations, and the results accomplished between 1802 and 1882, can be briefly told.

Under the War Department numerous exploring expeditions were sent out in the early part of the century to explore the unknown lands west of the Mississippi, and later, between 1848 and 1854, to discover routes for railroads to the Pacific coast. Of course, the results of these explorations were very crude, and the resulting map, though on a small scale, was largely guesswork, the areas between the routes of travel being filled in by hearsay from prospectors, hunters, and Indians.

Still later, several expeditions were sent out to make closer and more thorough explorations. The one which survived the longest, which developed the best methods of work, and which accomplished the most among all these army expeditions in the West, was that in charge of Captain G. M. Wheeler. This organisation commenced work in 1869, and continued until 1880. It mapped an area of 360,000 square miles, more than two-thirds of which was on a scale of 8 miles to one inch, or nearly 1:500,000, the remainder being on a scale of 4 miles to an inch, relief being expressed by hachures.

Between 1867 and 1872 Mr. Clarence King, a civilian in the employ of the War Department, conducted a geographic and geologic survey