

woman of perhaps unusual nobility and kindness to win the respect of her pupils.

D. BEYNON:—In reading the memoirs of our eminent women, it will be found that they invariably sing the praises of home education and discipline. The heart and the head go hand-in-hand better in the work of imparting knowledge under the roof of home, than it is possible for any fashionable boarding-school to accomplish.

SILVERSTAR:—Now, Sir, is it not a fact that, after completing their terms, most young ladies return home from boarding-schools proud, arrogant, and scornful, with false ideas of modesty and dignity, disdaining the companionship of those who were once their dearest friends? They are said to be "accomplished young ladies." Yes! they are perfect in pride, and they have acquired a sound knowledge of all the cold forms of etiquette; but, alas! they know hardly anything (if, indeed, anything) of domestic duties, they know hardly anything of the duties they owe mankind, they know but half the duties they owe their parents. This may be considered strong language, but we should bear in mind that "facts are stubborn things," and no one can deny that I am speaking the truth. If those girls had been placed in high day-schools, they would have been for a few hours every day under the guidance of their parents; they would have been taught in domestic affairs; they would not have been in want of parental care, love, and advice; they would have mixed more in society, and been better able to discern good men from bad; they would have been more sociable, graced with more humility, and, consequently, free from that detestable affectation which is characteristic of the majority of young ladies who have received a boarding-school education.

J. ROBERTSON:—Allow me to say a few words in answer to the Opener's arguments against sending our girls to boarding-schools; I should think his ideas of boarding-schools must be gathered from his grandmother; perhaps in her school-days they were the sort of places he describes, a kind of female Dotheboys Hall; but about a century ago children had not so much liberty as now, and even at home there was iron rule.

Our honourable friend says, "Girls would never be sent to boarding-schools could their fathers know what the life is by

experience." A girl generally has a mother, and she knows from experience what the life is, and if she had been unhappy or had had her childhood murdered, the remembrance would remain with her always, and she would endeavour to save her daughters from such a "barren wilderness." Instead of that, a mother is generally the most anxious for her girls to go to a boarding-school; and what girl has not been intensely interested in her mother's tales of her school days, and longed for the time when she would be able to go too? At school a girl has a busy life, and this teaches her the habit of employing her time usefully; she has several companions, and the daily intercourse with so many different tempers makes her think less of self and more of doing some kind act for another. Girls at home often grow selfish and idle; take for instance one who is an only child, where her parents indulge her in every possible way; if that girl were educated at home she would perhaps be only half educated, some fancied ailment or some new pleasure would very often interfere with study, and from being always considered of so much importance she would grow up a selfish, egotistical woman.

Other speeches supporting Opener's views received from J. East Shattock, H. M. Holliday, F. J. S., A. B. Brown, Dr. Kegan, Norma, MacLean, J. Hinton, E. G. G., Jumbo, S. A. G., B. Mellor, Harold, Dulce Domum, Eta, Beatrice, Benedick, A. L. O. D., R. W. Williams, G. H. Le Neveu, W. King, S. E. C. Young, W. Wakeford, E. Milne, E. E. Hubbard, E. C. H. Stamford, W. Shearer, E. P., G. D. Clark, Annie E. Myers, W. A. Jubb, R. Over, and others.

Other speeches supporting Opponent's views received from J. M. D. S., Pierrepont, L. Hyth, Montgomerie, M. McMillan, E. H. James, J. Eaton Fearn, Mrs. Swindells, A. C. Eaton, Jeanie Tulloch, C. Snewing, "A Girl who has just left School," A. E. L., M. Horobin, C. J. C., L. Holmes, L. M. Paine, Jessie Donisthorpe, M. E. Rangdale, H. S. S., junr., T. G. Parrott, J. H. Goulding, E. Norton, E. M. A., L. A. W., J. Beckett, M. F., Myrle, Winifred Grey, W. J. Ritchie, W. Speakman, Sparkhall Brown, E. Butt, E. Carter, Millie Rundle, J. M., Isabella Elliott, J. J. M. Davis, and others.

The Honorarium of £12s. has been awarded to Miss Catherine D. Logan, 10, St. Stephen's Crescent, Bayswater, W., whose speech, together with the Opener's Reply, will be given in our next issue, when the Debate on this question will be continued and concluded. No further speeches can be received on this question.

## THE TINCAL TRADE OF ASIA.



WHAT is "tincal?" Considering the importance of this trade, and the fact that it is daily increasing, it is somewhat remarkable that the majority of people in this country are entirely ignorant of the existence of such a trade, and in all probability most of the readers of the heading of this article will be moved with curiosity to know what "tincal" is, prior to their

interest being awakened concerning the trade in it. It may be well, therefore, before treating of the trade in tincal to explain in a few words the nature of this important natural product of the East.

Tincal is crude or rough borax, which is imported from Calcutta in crystalline masses, which contain borax combined with soda and a fatty acid. The salt is never termed borax until refined or purified. It was very early known to the Arabians, but they applied the term "baurach" indifferently to carbonate

of soda, the *nitrum* and *natron* of the ancients, also found as an efflorescence on the soil. "Baurach" is among the many chemical preparations noticed by the Arabian, Geber, who lived in the eighth century. It was employed by him for one of the same purposes for which it is used at present, viz., to assist in reducing the oxides of certain metals to the metallic state. Tincal is a saline compound or combination of soda with boracic acid, and this acid is a compound of oxygen with an elementary substance to which the name of "boron" is applied.

Thibet is the natural home of this mineral salt, where it is found in extensive districts. Quantities are dug out of the earth and crystallised, and a great many of the shepherds of Thibet are engaged in collecting this substance. The earth in some districts of Thibet, especially in the neighbourhood of Tasso Lumbo, is so impregnated with it, that as the dew falls it becomes saturated with it, and the stunted vegetation is soon covered with this crystalline salt. Large masses of it are obtained from Lake Pelta. The



natives report a lake 100 miles from this spot where still larger masses are found. This lake is said to be surrounded by precipitous rocks, no rivulet having access to it, and being supplied only by springs containing the tincal in solution. The constant evaporation of the water causes the deposition of the tincal in the bottom of the lake, whence it is removed by the natives. Though thousands of tons have already been removed there is no apparent decrease in the quantity, the supply seeming almost unlimited. Thibet exports very few articles of commerce to India; tincal, musk, gold-dust, and a little wool being the most important. Huc, in his "Travels in Tartary," gives the following account of the district:—

"On the 15th November we quitted the magnificent plains of the Kokou-Noor, and entered upon the territories of the Mongols of Tsaidam. Immediately after crossing the river of that name, we found the aspect of the country totally changed. Nature becomes all of a sudden savage and sad; the soil, arid and stony, produces with difficulty a few dry saltpetrous bushes. Mineral salt and tincal abound on this arid and almost wholly pastureless soil. You dig holes two or three feet deep and the salt collects therein, and crystallises and purifies itself without your having any trouble in the matter. The tincal is collected from small reservoirs which become completely full of it. The Thibetians carry quantities of it to their own country, to Lassa, where they sell it to the goldsmiths, who apply it to facilitate the fusion of metals."

Tincal is collected by the poor native population from the side of the lakes in September, October, and November, and is brought into the villages in Thibet and sold at the bazaars. Large droves of sheep are kept by these men, and these animals are used for transporting the tincal across the mountains, which are so rugged and inaccessible that no conveyance could pass over them. About 30 or 40 lbs. of tincal are packed upon the back of each sheep, and some few goats are also used in the trade. The sheep-owners then start on their long wearisome journey. Every driver carries a distaff and bobbins, and as they travel, every bit of wool which falls from the sheep, or sticks to the thorny bushes which from time to time are passed on the way, is carefully collected. This wool is spun into yarn or strong thread, and then woven into cloth, out of which these thrifty drovers construct bags. These bags are covered outside by sheepskin to prevent the tincal from getting wet. From 800 to 1,000 sheep make a drove, and the progress made per diem is about seven to nine miles, and it takes from six to eight weeks for the journey from the starting-point to Moradabad, where the tincal is disposed of.

The tincal is sold in the bazaars at Moradabad by the Bootees to native dealers, and from Moradabad it is sent on to Calcutta. The owners of the sheep take back on their return journey, salt, rice, sugar, cowrie shells (which pass as coin), and small Birmingham and Sheffield wares. In some districts tincal is known by the name of "swab," but it is more generally known as tincal. Unfortunately tincal, like other articles of trade, cannot claim immunity from adulteration. The

adulteration commences at Moradabad and other points on the Indian side of the Himalayas. It arrives in Calcutta most of it more or less mixed with sand and other impurities, though some of it arrives pure. As the purchaser of a box of figs generally finds all the prime fruit in the first layer, so in a similar manner when the European merchant goes to a native dealer in Calcutta to purchase a few hundred bags of tincal, he is prepared to find that all the visible bags contain the pure article. The buyer completes his purchase, but the moment he is gone many of the bags of prime tincal are put aside, and the adulterated stuff thrown in with his lot. The tincal is then shipped for Liverpool or London, good and bad all mixed together, and on arrival the buyer discerns the inferior article, and claims arbitration on account of inferior quality. The tincal is analysed by chemists in London and Liverpool, two brokers are selected to make the allowance or award, and the result is generally a loss of from £2 to £8 per ton to the owner or shipper. It has been suggested that this adulteration might easily be prevented if the European firms would agree only to ship tincal that has been sifted through sieves of, say, twenty meshes. If this were done the trade would materially increase, as most of the manufacturers, both in this country and in Germany, prefer tincal to borax for their enamelling. Some very fine crystals have lately been received from a newly discovered deposit in Nepaul, perfectly free from "dust," and if the bulk parcels are equal to the samples, adulterated tincal will soon be a thing of the past.

On its arrival in England the tincal goes through an elaborate process of refining and purification before it is ready for use. Very fine purified tincal yields an extremely high percentage of borax, viz., 98 to 99 per cent.—almost *pure* borax. This borax, or tincal, which is its more correct name, is used to produce that beautiful glaze or enamelling that we see on the articles manufactured in the earthenware trade; it increases the fusibility of the glass or glaze, which is composed of silica, or felspar, lime, and soda; lead is also added to increase the fusibility and density. The finer the quality of the glaze required, the greater quantity of this pure borax or tincal must be used. After it is run down into a glass it is called by the potters "frett," and the operation is called "fretting." This fret is ground in water until it is very fine and smooth and about the consistency of cream, when it is ready for use. The calcined or biscuit porous ware is then dipped into it, and absorbs a portion of it; the ware is then dried, and again fired, when the glaze on the surface fuses and covers the ware with a thin coating of glass. Borax or tincal is also used for domestic purposes, by the laundress, who finds that when put into the starch it improves the colour, and renders muslin incombustible. It is used also instead of soda for softening water and increasing the whiteness of linen, it is useful as a hair-wash, and makes an excellent dentifrice. So our readers will now understand that there is a good deal in "tincal," one way and another.