

Government of Madras.

EDUCATIONAL DEPARTMENT.

Recd.

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} 1915.

Enclosures

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G.O. No. 1201, 8th November 1915.

Dyeing Expert

Recording the report of the — for the quarter ending the 30th September 1915

Government of Madras.

EDUCATIONAL DEPARTMENT.

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Dyeing Expert

Recording the report of the — for the quarter ending the 30th September 1915

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper :—

Letter—from K. T. B. THRESSLER, Esq., Director of Industries.

To—the Secretary to Government, Educational Department.

Dated—Madras, the 26th/27th October 1915.

No.—B 2.

I have the honour to submit herewith Dr. Marsden's report for the last quarter. Dr. Marsden has omitted the most important work which he has been engaged on during the last quarter for the reason that it has passed out of our hands, but a few words in explanation may not be out of place.

When the war started Dr. Marsden made enquiries regarding the availability of Indian dyestuffs. There was a good deal of delay in replies, the character of which was also somewhat vague. It appeared that supplies would be insufficient to meet even a fraction of the demand, and many of the dyestuffs were of a unknown character. I however thought it would be worth while to investigate them, and accordingly made arrangements for the supply of bulk samples from all over the Presidency.

As there was no laboratory available for the purpose of extracting dyestuffs, I made arrangements with the Indian Institute of Science to accommodate Dr. Marsden, so that he could carry on his experiments there. In the meantime however Mr. Guthrie had gone on active service, and Dr. Marsden's presence was required in Madras. Dr. Marsden therefore made arrangements for the appointment of an Assistant who could work under his orders at the Indian Institute. Proposals were submitted to Government, but in the meantime Mr. Chatterton had got wind of the work that we were doing, and offered to take it over. As there seemed some difficulty in appointing an Assistant, I consented to his taking over the work. He has therefore taken all the samples that I had collected, and the man that I have selected, and is working out the investigation himself.

I understand from Dr. Marsden that Mr. Chatterton specially asked him not to mention this investigation, in his report, and he has accordingly refrained from doing so. In fairness to Dr. Marsden, I think it is necessary however to draw attention to the fact that he has done all the pioneer work on this investigation, although perhaps other people will get the credit for it.

ENCLOSURE.

Letter—from Dr. F. MARSDEN, Ph.D., M.Sc., Dyeing Expert to the Government of Madras.

To—the Secretary to Government, Educational Department (through the Director of Industries, Madras).

Dated—the 22nd October 1915.

I have the honour to submit my report for the period July—September 1915.

At the beginning of July I was called up to Madras to act as Principal of the Leather Trades School during the absence of Mr. Guthrie on military service and have been holding classes in chemistry, which is part of the first year course prescribed for the students. I have carried on the work of my own department from here but have to regret that the effect of the war has been to limit the scope very much and confine this to dealing with enquiries as to substitutes for dyes which are no longer available and giving what information is possible upon the natural dyes which were used in the past.

The efforts started a year ago to collect information as to the localities in which useful dyeing materials might be found and the quantities in which they were available, have borne some fruit, but it is evident now that the red dyeing roots which were so much used before the advent of synthetic alizarin have quite gone out of cultivation and it is apparently only in the Agency Tracts, Gajjam, that any quantity of the trees in question are in existence, and the amount of dyestuff contained will have an important bearing upon the question of the employment of the tree or bark as this cannot be expected to equal in the wild state that of the cultivated plant which itself contained only about 2 per cent. A sample of the wood has been forwarded to me for examination and when this is complete we shall be better able to judge of the possibility of using the material. The most reliable information I have at present is that in Madras a quantity of material was obtained by one of the large dyers and tried on the practical scale, and was found to be much less satisfactory and more expensive than imported alizarin, even at the high prices at present ruling for this product.

Referring to the question of obtaining dyestuff supplies from England I see from the home journals that the suggestions made in the early part of the year have appealed to the Government of India and am looking forward to hear that the Board of Trade representations to British Dyes Limited will shortly result in some supplies being received, although it is evident that the requirements of English dyers, even those engaged on Army work, are still far from being met.

The tremendous shortage which must have arisen in England and made the question of shipments so difficult will be realized from the import returns for July 1914 and July 1915. In July this year imports of dyes were *nil*, whereas in the same month last year they were valued at Rs. 26 lakhs or practically twice as much as the *annual* imports into Madras. It is a fact that certain shipments under the Licence Scheme of the Board of Trade (representing a fair proportion of the production) have been made to India through dealers but the prices have remained so high as to be prohibitive to the majority of dyers, and it is only the certainty of regular shipments of increased quantities being received which will counteract the cornering and gambling which has been taking place in Bombay, and ensure that prices will be such as will enable dyers to work at a cost which will make business possible.

In a recent publication I note that India took almost 5½ per cent. of the aniline dyes and 40 per cent. of the alizarin produced in Germany and the opinion is expressed that after the war prices will be at a phenomenal figure owing to the demands from India, China and the Far East.

It may be, but if the present prices are impossible to the majority of dyers it is only to be expected that there would be but very small sales at still higher prices.

One of the most interesting points which has arisen was the placing on the market of a "New" dye by a firm in Bombay. A representative appeared in Madras with samples and dyeings and claimed that a new process for the manufacture of a natural dye equal in fastness and brightness to any aniline colour had been discovered and the product could be placed at once on the market if they could get into touch with the users. The shade looked familiar to me and I doubted the statement that it was a natural product, but I would express no opinion until after examination. A sample of the dyestuff was forwarded to me; to the eye it appeared almost like alizarin in the form in which it is used by the dyer and I was surprised to find that the "paste" was nothing more than a "lake" produced by fixing Congo red (the cheapest and commonest aniline red on the market) upon a basis of yellow ochre. The yellow ochre and the water were the only "natural" components. The dyeing was to be carried out by mixing the paste with water, and boiling therein the material to be dyed, but a barrel of the paste could contain no more than a few pounds of effective dyestuff and the price per lb. together with the quantity which would have to be used to get a full shade would I am convinced have prevented much business being done. The manufacturers guaranteed to carry out my stipulation that every package should be plainly marked "not alizarine dye" and although I have heard of the paste being offered in Madras I have not heard of any sales being effected.

From time to time attention is directed by correspondents to some product which was used as a dyestuff in the past, and retains its place as such in the literature, and surprise is expressed that no use is being made of such products at the present time. As a matter of fact the list of really effective dyes is a remarkably short one, the list of "assistants" (of no dyeing power, but classed as dyeing materials, used in different localities by Indian dyers) is however a very long one. Their use was mainly empirical and depended in general upon their Tannin content, "Tannin" matter and alum being effective fixing agents for many dyes.

I have repeatedly drawn attention to this but the question is an ever recurring one *Woodfordia floribunda* (dawai, pitta jargi) was universally looked upon as a dye but my examination failed to discover any dyeing power (beyond the property of giving a dirty, useless yellow shade) in either the brightly coloured flowers or the leaves. I requested the Conservator of Forests to supply me with information as to districts where it was collected and used and, if possible, to obtain a description of the method of using. The report received by him concluded "It will thus be seen that the Jaji leaf is never used as an article from which dye material is extracted but it simply helps the process of dyeing by making the dye adhere to the cloth efficaciously."

A sample of the fruits of *Celastrus paniculata* from which a bright yellow coloured oil exudes was also forwarded to me to test their dyeing power but this was found to be nil.

The impossibility of getting a sufficient quantity of the dyes they had been in the habit of using has caused some dyers to buy other brands which were available, only to find that dyes have distinctive properties and cannot all be applied in the same way. Having nothing but an empirical knowledge of dyeing it was only to be expected that they would be at fault and in the cases in which I have been applied to, I have been able to give the method of dyeing best suited to the colour in question and have taken the opportunity of pointing out how purchasers would have been assisted had they possessed some knowledge of dyeing principles. The information is available in any book on modern dyeing and the experiments to decide upon the best method of application of particular dyestuffs would be dealt with in any regular course of dyeing instruction, so that if the dyers would only realise that a specialised education would place them in a position to overcome many of the difficulties which arise in the course of working, much might be done in the way of assisting the industry.

That little benefit would accrue by giving instruction of this kind to a student who desired to attend any course we provided is well exemplified in the case of a Madras student who having passed the Intermediate Examination decided to take up dyeing. He gained admission to the classes provided in an institution in another Presidency and learnt something of the theoretical side, but when he came to the practical application he found the difficulty which I have foreseen. He had to make a personal connection with dyeing; no Indian dyer is prepared to employ him, lack of capital and knowledge of the art being a serious stumbling block. He was obliged to find employment in some mill where dyeing is carried on; he spent a couple of years in acquiring something which he cannot turn to account.

By restricting admission to such instructional classes to those who are connected with the trade, the students might not have a sufficient general education to take full advantage of the course but what they would learn could be directly applied and would have an influence in increasing the knowledge of dying in the classes where it is most required.

Order—No. 1201, Educational, dated 8th November 1915.

Recorded.

(True Extract.)

C. G. TODHUNTER,
Acting Secretary to Government.

To the Director of Industries.
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JUDICIAL DEPARTMENT
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Dyeing Expert

Recording the report of the
for the quarter ending the 30th
September 1915

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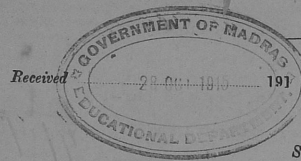
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SUBMITTING QUARTERLY REPORT OF DR. MARSDEN,

DYEING EXPERT, MADRAS.

ENCLOSURES
No. 1
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No. B 2

Station Madras, Dated the 26th October, 1915.
27

From (Name) K. T. B. Treasurer, Esq.,
(Designation) Director of Industries.

To The Secretary to the Government of Madras,
EDUCATIONAL Department.

Sir,

I have the honour to submit herewith Dr. Marsden's report for the last quarter. Dr. Marsden has omitted the most important work which he has been engaged on during the last quarter, for the reason that it has passed out of our hands, but a few words in explanation may not be out of place.

When the war started Dr. Marsden made enquiries regarding the availability of Indian dye stuffs. There was a good deal of delay in replies, the character of which was also somewhat vague. It appeared that supplies would be insufficient to meet even a fraction of the demand,

and many of the dye stuffs were of a unknown character. I, however, thought it would be worthwhile to investigate them, and accordingly made arrangements for the supply of bulk samples, from all over the presidency.

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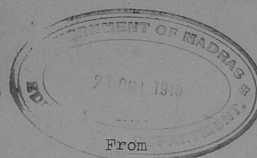
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I have the honour to be,

Sir,

Your most obedient servant,

Am
Director of Industries.



Dr. F. Marsden, Ph.D., M.Sc.,

Dyeing Expert to the Government of Madras,
Madras.

To

The Secretary to Government,
Educational Department,
Madras.

Through

The Director of Industries,
Madras.

Sir,

I have the honour to submit my report for the period July - September 1915.

At the beginning of July I was called up to Madras to act as Principal of the Leather Trades School during the absence of Mr. Guthrie on Military Service and have been holding classes in Chemistry, which is part of the first year course prescribed for the students. I have carried on the work of my own Department from here but have to regret that the effect of the War has been to limit the scope very much and confine this to dealing with enquiries as to substitutes for dyes which are no longer available and giving what information is possible upon the natural dyes which were used in the past.

The efforts started a year ago to collect information as to the localities in which useful dyeing materials might be found and the quantities in which they were available, have borne some fruit, but it is evident now that the red dyeing roots which were so much used before the advent of synthetic Alizarin have quite gone out of cultivation and it is apparently only in the Agency Tracts, Ganjam, that any quantity of the trees in question are in existence, and the distance from the railway

will mean that the cost of collection and cartage will be heavy. The amount of dye stuff contained will have an important bearing upon the question of the employment of the tree or bark as this cannot be expected to equal in the wild state that of the cultivated plant which itself contained only about 2 per cent. A sample of the wood has been forwarded to me for examination and when this is complete we shall be better able to judge of the possibility of using the material. The most reliable information I have at present is that in Madura a quantity of material was obtained by one of the large dyers and tried on the practical scale, and was found to be much less satisfactory and more expensive than imported Alizarin, even at the high prices at present ruling for this product.

Referring to the question of obtaining dyestuff supplies from England I see from the Home Journals that the suggestions made in the early part of the year have appealed to the Government of India and am looking forward to hear that the Board of Trade representations to British Dyes Ltd., will shortly result in some supplies being received, although it is evident that the requirements of English dyers, even those engaged on Army Work, are still far from being met.

The tremendous shortage which must have arisen in England, and made the question of shipments so difficult will be realised from the Import Returns for July 1914 and July 1915. In July this year imports of dyes were nil, whereas in the same month last year they were valued at Rs.26 lakhs or practically twice as much as the annual imports into Madras. It is a fact that certain shipments under the Licence Scheme of the Board of Trade (representing a fair proportion of the production) have been made to India through dealers but the prices have remained so high as to be prohibitive to the majority of dyers, and it is only the certainty of regular shipments of increased quantities being received which will counteract the cornering and gambling which has been taking place in Bombay, and ensure that

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One of the most interesting points which has arisen was the placing on the market of a "New" dye by a firm in Bombay. A representative appeared in Madras with samples and dyeings and claimed that a new process for the manufacture of a natural dye equal in fastness and brightness to any aniline colour had been discovered and the product could be placed at once on the market if they could get into touch with the users. The shade looked familiar to me and I doubted the statement that it was a natural product, but I would express no opinion until after examination. A sample of the dyestuff was forwarded to me; to the eye it appeared almost like Alizarin in the form in which it is used by the dyer and I was surprised to find that the "paste" was nothing more than a "lake" produced by fixing Congo Red (the cheapest and commonest Aniline Red on the market) upon a basis of Yellow Ochre. The Yellow Ochre and the water were the only "natural" components. The dyeing was to be carried out by mixing the paste with water, and boiling therein the material to be dyed, but a Barrel of the paste could contain no more than a few pounds of effective dyestuff and the price per lb. together with the quantity which would have to be used to get a full shade would I am convinced have prevented much business being done. The manufacturers guaranteed to carry out my stipulation that every package should be plainly marked "not Alizarine Bye" and although I have heard of the paste being offered in Madura I have not heard of any sales being effected.

From time to time attention is directed by correspondents to some product which was used as a dyestuff in the past, and retains its place as such in the literature, and surprise is expressed that no use is being made of such products at the present time. As a matter of fact the list of really effective dyes is a remarkably short one, the list of "assistants" (of no dyeing power, but classed as dyeing materials, used in different localities by Indian dyers) is however a very long one. Their use was mainly empirical and depended in general upon their Tannin content, "Tannin" matter and alum being effective fixing agents for many dyes.

I have repeatedly drawn attention to this but the question is an ever recurring one. Woodforida Floribunda (dawai, pitta jargi) was universally looked upon as a dye but my examination failed to discover any dyeing power (beyond the property of giving a dirty, useless yellow shade) in either the brightly coloured flowers or the leaves. I requested the Conservator of Forests to supply me with information as to districts where it was collected and used and, if possible, to obtain a description of the method of using. The report received by him concluded "It will thus be seen that the Jaji leaf is never used as an article from which dye material is extracted but it simply helps the process of dyeing by making the dye adhere to the cloth efficaciously".

A sample of the fruits of Celastrus paniculata from which ~~fraxoxylis~~ a bright yellow coloured oil exudes was also forwarded to me to test their dyeing power but this was found to be nil.

The impossibility of getting a sufficient quantity of the dyes they had been in the habit of using has caused some dyers to buy other brands which were available, only to find that dyes have distinctive properties and cannot all be applied in the same way. Having nothing but an empirical knowledge of dyeing it was only to be expected that they would be at fault and in the cases in which I have been applied to, I have been

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able to give the method of dyeing best suited to the colour in question and have taken the opportunity of pointing out how purchases^u would have been assisted had they possessed some knowledge of dyeing principles. The information is available in any book on modern dyeing and the experiments to decide upon the best method of application of particular dyestuffs would be dealt with in any regular course of dyeing instruction, so that if the dyers would only realise that a specialised education would place them in a position to overcome many of the difficulties which arise in the course of working, much might be done in the way of assisting the industry.

That little benefit would accrue by giving instruction of this kind to all who desired to attend any course we provided is well exemplified in the case of a Madras student who having passed the Intermediate Examination decided to take up Dyeing. He gained admission to the classes provided in an Institution in another Presidency and learnt something of the Theoretical side, but when he came to the practical application he found the difficulty which I have foreseen. He had no previous connection with dyeing; no Indian dyer is prepared to employ him, lack of capital and knowledge of the business preclude him starting for himself and unless he can find employment in some mill where dyeing is carried on he has spent a couple of years in acquiring something which he cannot turn to account.

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I have the honour to be,
Sir,
Your most obedient servant,

F. Marston

Dyeing Expert to the
Government of Madras.

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