

yielded 150 worms and the second 30 more; they unfortunately left for England before a third dose could be given. After this striking result I determined to try the method in other cases and during the summer I employed it at the hospital, not only on my own cases but also on those of my colleague during his absence on leave.

Our previous routine method was as follows. After the patient had fasted during the day a gramme of thymol was given in cachet in the evening; on the next morning the dose was repeated and followed by a purge. But often the drug produced great depression of the heart with slowing of the pulse, and artificial stimulation in the form of strychnine and strong coffee had to be resorted to, and fatal results had even occurred. The patients on thymol were therefore always a source of anxiety to the sister in charge and to the hospital orderlies and much time was wasted in watching them. A safer method was therefore much to be desired.

The treatment below described fulfils, in my opinion, this requirement and has been followed, when properly carried out, by very good results. I do not, however, consider it absolutely perfect, as there are occasional failures, but I am certain that it is more successful than thymol is in such doses as can be given in safety. Dr. Hermann described in his paper several methods of treatment—with thymol, filix mas, and eucalyptus, but concluded that the last drug was the most successful; his formula was as follows: eucalyptus oil, 2 grammes; chloroform, 3 grammes; and castor oil, 40 grammes. This formula I used at first and then, finding that no ill effects were produced in many cases, I increased the doses as follows: eucalyptus oil, 2.50 grammes; chloroform, 3.50 grammes; and castor oil, 40 grammes.

The following is the routine method employed by me now at Kasr-el-Aini Hospital. About 6 P.M. the patient takes a saline purge (though this is not absolutely necessary, as for a long time I discarded it, though, perhaps, it is better not to omit it) and then fasts all night. On the next morning at 7 o'clock he takes half the above mixture and in half an hour's time he takes the other half. He is kept in bed still fasting until the bowels act. Should any depression occur after the first half of the drug the second half is omitted. (This happened in the case of the youngest pygmy who only took half the dose.) In young boys and feeble anæmic patients the dose is divided into thirds and given with twenty-minute intervals. The dose can be repeated every other day. This effects a considerable saving of time necessary for treatment. As a rule, from three to four liquid stools follow, though sometimes only one. Dr. Looss, who examined the stools in the earlier cases for me, tells me that in the first stool there are no worms, and that in the first solid stool after the medicine has ceased acting there are also no worms. He found further that the worms are expelled alive. This may account for the absence of worms in the solid stools as the worms may have time to recover and reflex themselves.

Occasionally the first administration is not successful, though why I do not know, and again very occasionally after one or two negative results a few worms appear. This may be accounted for in some instances, as Dr. Hermann suggests, by the fact that the worms, having entered through the skin just before admission, have not reached the gut until after the lapse of some time. Though in one case (which will be referred to again) a few days after an unsuccessful administration some worms were found *in situ* at the post-mortem examination.

The earlier cases were examined by Dr. Looss, but later I detailed a student week by week during the summer to examine the stools. Unfortunately, however, owing to stress of work on several occasions the stools were thrown away unexamined and so the results are not quite so full as I should like them to have been.

In 44 cases it was wholly successful, as one or more further doses of the eucalyptus mixture yielded no more worms. In some, also, one or more doses of thymol were given with the same object and the same result. In 21 cases a single dose was sufficient, one confirmatory dose of the eucalyptus mixture being given in 15, two extra doses in four, and in one two doses of the mixture and two doses of thymol with negative result. In four of this series thymol had been previously given before the eucalyptus was tried. In 16 cases two administrations were sufficient, as confirmatory doses showed. In some of these, as already mentioned, the first dose was unsuccessful and in several others the second dose expelled more than the first dose. In three cases three doses were necessary and in four cases four doses were given.

One of these latter cases is very instructive. The first dose having expelled no worms thymol was given twice with a negative result; the patient was then given eucalyptus five times—the first three of these expelled worms whilst the last two doses yielded none. In 26 other cases, including the pygmies, it was very efficient, but the patients left hospital before confirmatory doses were given; thus in one case after 76 worms were expelled by the first dose the patient insisted on going home. So whether these were completely cured or not is uncertain.

In the majority of cases, with the exception of a first administration, if a negative result was once obtained further dosage expelled no more worms. The following instances are exceptions: 1. A man, aged 20 years; the second dose expelled none but the third expelled 76 and the fourth 33, the fifth being negative. 2. A man, aged 20 years; the fifth dose expelled none but the sixth expelled six. 3. A man, aged 25 years, who was extremely weak and anæmic, took the eucalyptus mixture on July 22nd, with the result that 47 worms appeared; a further dose on the 26th expelled none; he died on the 29th and 21 worms were found post mortem. (This case is not included with the successful cases above.)

In 29 other cases the mixture was given in some for diagnosis and in some for treatment. In 23 no worms appeared, in five the stools were lost, and in another thymol expelled two worms after two doses of eucalyptus had failed. In three other cases the following results were obtained. In one after the first dose of the eucalyptus mixture the stools were not examined but a dose of thymol expelled 13 worms; a second dose of eucalyptus yielded none. In another the first dose of eucalyptus expelled one worm; then thymol expelled four and a further dose of eucalyptus five. In the third a dose of eucalyptus and a dose of thymol were unsuccessful but a second dose of thymol expelled ten and a dose of eucalyptus seven; a final dose gave a negative result.

The most successful cases were as follows. A first dose expelled 329 worms, a second none. In another the first dose expelled 270 in spite of previous dosage with thymol. In a third the first dose expelled 37, the second 300, and the third none. In a fourth case the result of the first administration was not examined but the second yielded 150 and two further doses none.

That the chloroform is essential is shown by the fact that in three cases where the ova were present chloroform water was given in error instead of chloroform, with a negative result. Thus the treatment has been employed in 103 instances (the cases in which chloroform water was given being excepted), in 44 of which it was entirely successful and in 26 efficient, and in the other 33 the result was either unknown or else negative, the treatment being employed in some for diagnosis, or else mixed treatment was adopted. In one case, that of a patient who died, it was only partially successful.

I think, however, that it is obvious from a consideration of the above results that the treatment is satisfactory with reference to its vermifugal effects. Further, it is not unpleasant for the patient, the long fasting being unnecessary and the taste of the mixture not offensive. It is cheaper and repetition being possible three times a week the stay in hospital is shortened. Lastly, the absence, or rather rareness, of cardiac depression as a result is a good feature. All these facts make it an advance in treatment. As regards the dosage, if the patient be strong and fairly healthy I give the larger dose, but if very young (12 years of age or so) or very weak the smaller dose given in thirds. Oxyurides are freely expelled by it and I have used it in one instance to expel a tapeworm with success.

Cairo.

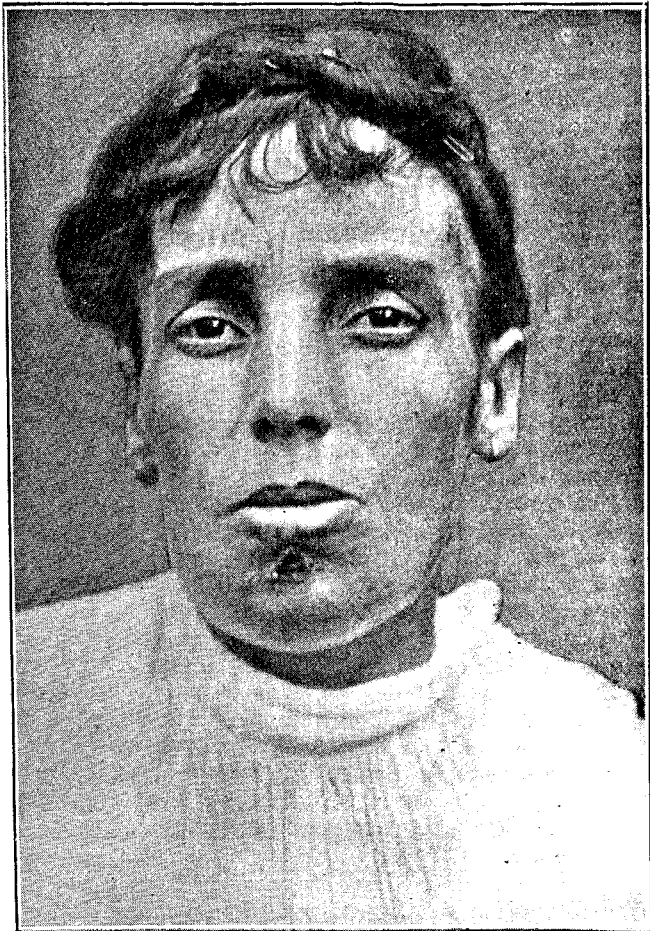
ABERRANT VACCINIA.

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A VACCINATION vesicle in an anomalous situation is perhaps no very great rarity; they are always worthy of report as awkward questions of diagnosis may be raised by them. I was fortunate enough to secure an excellent photograph of a case of this kind that came under my observation

last summer. The woman applied for treatment at the Bourne Valley Dispensary. The appearance of the "sore" of which she complained was that of a large mature vaccine vesicle and on inquiry I learned that her baby had been vaccinated a fortnight before and that the arm had "taken" well. The exact manner in which the virus had been transferred could not be ascertained. The baby's finger-nail



seems the most probable instrument of inoculation. The lip, as the illustration shows, was much swollen and it was very painful; there was considerable constitutional disturbance—pyrexia, headache, &c. These symptoms subsided in a few days and the vesicle ran the usual course.

Parkstone.

A FURTHER CONTRIBUTION TO THE STUDY OF MENTAL FATIGUE IN SCHOOL CHILDREN.

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It is very useful to compare the mental fatigue produced in school children by the afternoon lessons (1) when there is only a short rest between the forenoon and the afternoon lessons and (2) when this rest is greater, in order to see if this last system of school hours is better than the first one. In my treatise on "Mental Fatigue in School Children" ¹ are collected the results that I obtained with regard to afternoon teaching when this began only three-quarters of an hour after the conclusion of the forenoon classes, the interval of rest being from 12 noon to 12.45 P.M. and I am therefore in a position to compare these results with those I obtained last year, in which the afternoon lessons began two hours after the conclusion of the forenoon classes, the interval of rest being from 12 noon to 2 P.M. During this time the poorer children received a meal supplied at the public expense and those who were better off went to their homes.

As in the year 1900 I used the dictation method in these researches and in order to be able to compare the results obtained at two different periods I employed last year at the

beginning and at the end of the afternoon classes the same dictation exercises as in 1900; I also took care that in the new one prepared for the experiments of last year the children should find the same difficulties as in the other two. The schools in which the trials were made were the same in which I experimented five years ago. The first dictation was given to the children at 2 P.M. when school was resumed for the afternoon classes, the second at 2.45 P.M., and the third at 3.30 P.M. during the last half hour of the lesson. For the correction and counting of mistakes I used the same method that I used in my work of 1900, reckoning separately mistakes and corrections made by the children. I also counted the children who did not make mistakes and divided the others into groups corresponding to the number of mistakes that they had made.

I do not report here the results obtained in all the classes but I have summarised them as if there were in all only two containing children of the average age of 11 years and eight months. I also show here the tables exhibiting the results obtained in 1900 in order that I may be able to compare the latter with the former and draw the conclusions that follow from the comparison.

TABLE I.—Boys' Schools: General Summary of Results of the Year 1905.

Trial.	Hours (P.M.).	Average age.	Written letters.	Mis-takes.		Differences.	Auto-cor-rections.		Boys who did not make mis-takes.		Average of mistakes for every boy.	Below the average.	
				Total.	Per cent.		Total.	Per cent.	Total.	Per cent.		Total.	Per cent.
1	2	11 years and 8 months.	97,474	330	0.338	—	63	0.064	157	48.1	1.01	244	74.8
2	2½		96,368	811	0.841	+ 0.503	111	0.115	50	15.7	2.55	192	60.5
3	3½		98,820	849	0.859	+ 0.018	140	0.141	57	17.5	2.62	190	58.6

Boys.—Table I. shows in a concise form the results obtained last year in schools for boys. It will be seen that after three-quarters of an hour of lessons the boys made a percentage of mistakes 0.503 greater than the corresponding number obtained at the moment of the beginning of lessons after the midday rest. Also the percentage of auto-corrections was 0.051 higher at 2.45 P.M. than at 2 P.M. and the percentage of the boys who did not make mistakes fell from 48.1 at 2 P.M. to 15.7 at 2.45 P.M. At 3.30 P.M. the percentage of mistakes augmented only by 0.018 and that of auto-corrections by 0.026, while the percentage of boys who did not make mistakes rose from 15.7 to 17.5. The general results are that from the moment of the beginning of the afternoon lessons at 2 P.M. to the moment of the end of the school at 3.30 P.M. the percentage of mistakes augmented by 0.521 and that of the auto-corrections by 0.077, while the percentage of the boys who did not make mistakes diminished by 30.4 and the average of mistakes for every boy went from 1.01 to 2.62.

TABLE II.—Boys' Schools: General Summary of Results of the Year 1900.

Trial.	Hours (P.M.).	Average age.	Written letters.	Mis-takes.		Differences.	Auto-cor-rections.		Boys who did not make mis-takes.		Average of mistakes for every boy.	Below the average.	
				Total.	Per cent.		Total.	Per cent.	Total.	Per cent.		Total.	Per cent.
5	12½	11 years and 4½ months.	87,600	640	0.730	—	69	0.078	61	20.89	2.19	162	55.4
6	2½		89,340	1348	1.508	+ 0.778	124	0.138	17	5.86	4.64	174	60.0

From Table II. it will be seen that in the year 1900, during the same period of time—namely, after two hours of lessons—the percentage of mistakes for every boy augmented

¹ Bologna: Regia Tipografia, 1901. A short article of mine on the same subject appeared in THE LANCET of May 11th, 1901, p. 1330.