These results are even better than those published last year, and may be taken to represent pretty accurately the actual permanent recoveries, as they have been continuously under observation, with the exception of about 20 who were discharged from gaol under six months from the date of the last attack.

Seasonal Prevalence of Dysentery.

The monthly distribution of these cases was as follows:

January ...	17 cases.	July ...	36 cases.
February ...	4 "	August ...	67 "
March ...	18 "	September ...	69 "
April ...	13 "	October ...	30 "
May ...	10 "	November ...	14 "
June ...	5 "	December ...	17 "
Total ...	300		

These figures, as well as those published last year, show the seasonal prevalence of the disease—namely, in the rainy season, from the end of June till late in October.

The period of their stay in hospital this year averaged eleven days, as compared with ten days in those previously reported. Many might have been discharged earlier, but a stay of several days in hospital, after the stools have become normal, and full diet has been allowed is, I consider, a most important point to be attended to in the prevention of relapses.

Of the 3 fatal cases in this series 2 were extremely acute cases in which meat-washings stools were constantly passed, and a condition of acute gangrenous inflammation of the colon rapidly supervened. The third fatal case, after the salines had failed, made a wonderful rally after a large dose of ipecacuanha (30 grs.), but died some seven weeks later with symptoms of chronic diarrhoea. At the necropsy the small intestine was found thin and atrophied, and the large intestine was a mass of chronic inflammation from the cæcum to the rectum. He was a feeble old and toothless man, aged 55.

Method of Using the Salines.

There is little to add to the remarks made last year. I used throughout the year the following mixture: R Sodii sulphatis 3j; aquæ fœniculi ad 3j. This was given four, six, or eight times a day (each dose represented one drachm of the saline) as the case required. No dose was repeated on the following day till the stool had been inspected. The saline was continued till every trace of blood and mucus had disappeared. In most cases the inflammatory products had disappeared completely in two or three days; in others they returned on the third or fourth day, necessitating a repetition of the saline.

In a note on the saline treatment of dysentery, published during the past year in the BRITISH MEDICAL JOURNAL, one writer from the South African war hospitals referred to the saline method as being "painful;" in my experience it is rather the tenesmus, etc., which is rapidly relieved by the salines, which is "painful;" the soft yellow stools passed after the use of the soda sulphate cause no pain.

The Limitations of the Saline Treatment.

A word or two is necessary on the limitations of this method of treating dysentery. It is advocated for acute cases only. I do not consider it a safe method for chronic or relapsing cases with ulceration of the colon. In cases in which either the symptoms or the history point to the disease being either chronic or relapsing, I only use the saline for one or two doses during an exacerbation of the chronic state, and then continue to treat the case with soda and bismuth or with salol, with an occasional dose of castor oil. For stools containing scybala nothing is so good as a dose of castor oil guarded by 10 minims of laudanum.

The saline treatment of dysentery is now very largely used in Indian hospitals, and I would impress upon all who wish to try it that unless they can arrange to see the stools daily (at least one morning stool), they can never use the method to its best advantage.¹

When the patient can be admitted to hospital I believe the saline is the best method of treating acute dysentery, but I would hesitate to apply it in a routine fashion in out-patient practice, on account of the possibility of many patients having had previous attacks, and having their bowels in a state of unhealed ulceration.

From what I have read of the use of this drug in the dysentery of the South African campaign, I am not sure

that it was not often given in relapsing cases, and when chronic ulceration was present. It is not (except in the limited way noted above) intended for such cases. The success which has this year attended our treatment of the chronic cases is, I believe, due to careful dieting on rice water (*mar*), and boiled milk and tyre (*dahi*), the use of anthelmintics (a large proportion of the inhabitants of this part of Bengal harbour both round and tape worms), and the careful occasional use of the saline, with Dover's powder and the intestinal antiseptics. There is no royal road to the cure of chronic dysentery. I also have freely used fresh bael fruit, especially for the chronic cases. This fruit is now again official, but I doubt if the inclusion of its preparations in the Indian and Colonial *Addendum* to the *British Pharmacopœia* will be of much use, as the fresh fruit is available in India almost all the year. It is perhaps worth noting that not a single case of liver abscess was found among the 885 cases here referred to.

Mortality of Dysentery.

As regards the mortality of dysentery, the figures quoted in all recent textbooks are somewhat misleading. The death-rate for natives from dysentery is given usually at from 30 to 37 per cent. These figures are based upon cases admitted in an advanced state into public hospitals, many of them having previously suffered from the disease. In the past few years over 60,000 cases of dysentery have been treated in all the gaols of India with a mortality of only 7 per cent., which is the same ratio as given by Scheube for the dysentery of the Further East. The very favourable rate of just over 1 per cent. for the above 855 cases represents the saline treatment of cases of acute dysentery promptly and immediately treated as indoor patients in a hospital.

NOTE.

¹ The stools of all chronic cases should be frequently "washed," after the method long in use in India (and recently described by Professor Kenneth McLeod in the *Edinburgh Medical Journal*, April, 1900). In this way alone can an accurate knowledge be got of the actual state of the bowel inflammation.

THE RESISTANCE OF THE LARVAL MOSQUITO TO COLD,

NOTES ON THE HABITS AND LIFE-HISTORY OF MOSQUITOS IN ABERDEENSHIRE.

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DURING a period extending from the commencement of August last year to the present time favourable opportunities presented themselves for observing the habits and life-history of mosquitos in Aberdeenshire. Certain of the facts that came under notice appear to be of sufficient interest to merit being placed on record. The observations were made on the mosquitos included in the following list:—

A. *Anopheles*. (1) *A. maculipennis* (*claviger*); (2) *A. bifurcatus*; (3) *A. nigripes*—a few insects closely resembling the *A. bifurcatus*, but of a smaller size, were taken by me to be representatives of this species.

B. *Culex*. (4) *Culex annulatus*; (5) *C. pipiens*; (6) *C. nemorosus*. All these species were obtained on Deeside, especially at Torphins. Within the limits of the City of Aberdeen two species of *Culex*—*pipiens* and *annulatus*—were caught. From the middle of August to the middle of October mosquitos were plentiful. They proved to be as ready and persistent as those in the tropics to attack man. The *A. bifurcatus* and *C. nemorosus* were most troublesome in this respect. Repeated attempts were made with the *C. annulatus*, but they could not be induced to bite, although confined under a glass over any part of the human body. The favourite feeding time of the mosquitos was late in the evening, but the *Culex nemorosus* was ready to attack at any time of the day, even in bright sunlight. The *C. pipiens* and *A. bifurcatus* would occasionally start blood-sucking on dull days in shady places in the woods. All the specimens of *A. maculipennis* obtained were bred from larvæ. It was remarkable that, though plentifully got in this manner, I did not catch any of the adult insects of this species on the wing. Major Giles, in his *Handbook of Gnats*, mentions that in England it is only in hot weather that mosquitos show any strong tendency to

attack human beings. This, however, has not been my experience, for in spite of the cold towards the end of October I was freely bitten by mosquitos when sitting out in the open at sunset.

The duration of the larval stage is said to vary from a few days to weeks, being influenced by the temperature, etc. I have now in my possession *Anopheles* larvæ collected in September, 1900. They have been kept apart from others and under close observation for five months. Another lot of larvæ—*Culex* and *Anopheles*—collected on October 25th last are still quite vigorous and healthy.

EFFECTS OF TEMPERATURE ON MOSQUITO LARVÆ.

In the *Handbook of Gnats* Major Giles writes:

Both males and females, but especially the latter, are much longer lived than is usually believed to be the case, and it is by the survival of hibernating impregnated females in sheltered nooks that the continuity of the species is ensured, for, as far as I know, none of the larvæ are capable of enduring even a temperate winter. In the North-West Provinces and Punjab, although the winter air temperature may not fall so low as in Europe, the radiation at night is so powerful as to occasionally freeze the small collections of water most favoured by mosquitos, and in any case to render them too cold for the survival of the larvæ. The larvæ cannot survive cold, and in Europe certainly any that have not completed their metamorphosis by the return of winter die.

On October 25th, 1900, when I collected larvæ, there was a slight sprinkling of snow on the ground, and the frost sufficed to freeze the water in the pools and form a crust of ice about one-eighth of an inch thick; yet the larvæ in these partly frozen pools were alive and quite active. I even observed mosquitos emerging from the nymphæ, and after a short interval able to take the wing. No precautions were taken to maintain a high temperature in the room in which my collections of larvæ were kept, the window being kept open. For the past three weeks snow has fallen and remained on the ground. During this time the water in my mosquito larvæ bowls has not been over 44° F., and on some occasions was found to register 33°. On the morning of February 14th the temperature of the room was 29°. There was a crust of ice on the surface of the water in bowls. The larvæ were still moving freely in water under the ice. A few *Culex* larvæ had, whilst coming to the surface to breathe, become frozen, and were adherent to ice. When set free they were motionless, but recovered shortly. A teacup containing *Culex* and *Anopheles* larvæ was placed outside on a ledge of the garden wall. There was about 6 inches of snow at the time on the ground. After forty-eight hours' exposure to cold the larvæ were alive. The cup was next placed in a large bowl and ice packed round it. After the lapse of eight hours the larvæ remained alive. Salt was then mixed with the ice, and the water in the cup was slowly frozen. As long as there was any water unfrozen the larvæ moved about, but succumbed when the freezing advanced and all the water was rendered solid. Another experiment was undertaken with a fresh lot of larvæ with the object of subjecting them to a prolonged low temperature. This was done by intermittent freezing, freezing being always stopped before all the water was solidified. The larvæ were alive after four days of such exposure to cold; they were killed on the night of February 14th, when all the water in the cup became solidified by the extreme cold. Doubtless death was caused in these instances by embedding in ice preventing access to air and interfering with breathing.

The mosquito pools at Torphins were examined on February 9th to ascertain how the larvæ had fared over the winter and fared under natural conditions. These pools, like the surrounding country, were found to be under cover of snow. This state of matters had existed for two weeks. With the aid of a spade, the snow, which varied in depth from 18 inches to 2 feet, was removed from the pools. The lower layer of snow was frozen hard, and formed an arch over the shallow water in pools. In spite of this long subjection to cold, I found many live mosquito larvæ, both *Culex* and *Anopheles*. In addition to these I obtained larvæ of the *Dira*, and also specimens of what I took to be larvæ of the dragon fly and May fly, besides other minute water insects. No mosquito nymphæ were found.

In summer and autumn I kept mosquitos alive for periods varying from weeks to two months, the food given being juices of fruits or syrup from jams. In November I had about forty mosquitos, and they all died off as the cold season advanced. A careful search was made for hibernating females, but without success. In sheltered places, however, many

species of other dipterous flies were observed throughout winter.

Those larvæ that changed into pupæ late in November and December, and even January, died before completing their metamorphosis. Seemingly, in this phase great cold is not borne well.

One sees it generally stated and accepted that the adult mosquito is able to survive the rigours of winter in a state of hibernation, and when the season becomes warm turns active, lays eggs, and so provides for the perpetuation of the species. So far as I am aware there is no actual proof of this. From the observations I have made—the extreme prolongation of the larval stage and the power shown by the larvæ to withstand low temperatures—it seems reasonable to infer that it is really the larvæ that provide for the continuation of the species through winter in these northern countries, and probably throughout Europe. It is during winter that one may hope to do most towards exterminating mosquitos. Larvæ could be searched for and found with greater ease than those mosquitos that are said to hibernate in out-of-the-way corners.

In kerosene oil we have a most efficient larvicide, but through imperfect methods of application complete success has not been gained. The usual directions are that the oil should be applied and renewed from time to time. This intermittent application, however, is not right. Better results would follow by suspending a vessel containing the kerosene oil over the water, and arranging for the discharge of oil a drop at a time. The outflow being regulated so that there would be a continuous film of oil on the surface of collections of water near dwellings that cannot either be drained off or filled in.

A CASE OF RECURRENT ALCOHOLIC PERIPHERAL NEURITIS.

By LESLIE H. JONES, M.D., M.Ch., F.R.C.S.I.

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CONSIDERABLE diversity of opinion appears to exist among physicians regarding the part alcohol has played independent of, or in conjunction with, arsenic in the recent outbreak of peripheral neuritis. Indeed, some appear quite sceptical, and doubt whether alcohol has had any influence. Dr. Reynolds, for instance, in his evidence before the Royal Commission appointed to investigate the subject, is reported to have said, "He had never seen pure spirit produce alcoholic neuritis. He knew one lady who took a bottle and a-half of whisky a day, and another a bottle of whisky a day, and neither had neuritis"; and, as if to emphasise his scepticism, he concluded by saying, "Typical instances of this disease had occurred among spirit drinkers, though none had come within his own experience."

Now, it is my conviction that I have seen many cases, and among them the following incontestable example, remarkable for the fact that the intense neuritis, which affected almost the whole muscular system, was caused by a very moderate amount of alcohol.

First Attack.

On June 1st, 1887, Miss X. was sent to me from the country suffering from absolute paralysis of the extensors of the hands and feet. With difficulty she dragged her feet along the ground, and the hands, as shown in Fig. 1, were utterly powerless. The deltoids, muscles of the arms, the buttocks, and the muscles of the legs were atrophied.

At first sight the case looked like one of lead poisoning, but the concomitant symptoms of this affection were entirely absent, and on investigation it was found that no source of lead-poisoning existed.

This lady had for some time been peculiarly circumstanced—domestic duties of a most exhausting nature, continuous throughout the day, and extending to the early morning hours of the next, reduced her strength and debilitated her constitution. In contending against her weakened physical condition she had recourse to stimulants. Whisky, in moderate quantities, was the stimulant she resorted to, never dreaming she was taking more than was good for her, or than modesty or rectitude permitted; and indeed the quantity daily taken had been so moderate I doubted whether it could have caused the paralysis, and suspected that this might possibly be of idiopathic origin. At that time my friend the late Dr. Ross was greatly interested in the subject, and I got him to see her, and after a prolonged and exhaustive examination, he concluded that it was a typical case of alcoholic neuritis. Subsequent events proved the correctness of his diagnosis.

After total abstinence from alcohol for four years, during which electricity from both the continuous and interrupted currents was used regularly, the patient, having passed through a chequered time of pro-