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GENERAL MEDICINE.

CARBOLIC ACID AND ZYMOTIC DISEASE.

By JOHN DOUGALL, M.D., Medical Officer of Health for the Burgh of Kinning Park, Glasgow.

A breakfast-saucerful of pure crystallized carbolic acid liquefied by a minimum quantity of water was placed on a table close to a small iron stand six inches high. Both were covered with a glass bell-jar of one cubic foot capacity, its roof being one foot above the surface of the table and six inches above the top of the stand. Twelve hours after, the interior of the jar being then filled with concentrated carbolic vapour, the jar was raised vertically, and a slip of glass on which was placed a minim of vaccine lymph (reaction alkaline) laid on the stand; the jar was at once replaced, and in the heart of this cubic foot of strong carbolic vapour the minim of lymph was buried for thirty-six hours. At the end of this time, the lymph, now shrunk into an opalescent scab, was moistened with a little water and glycerine (mixture neutral) and sealed in capillary tubes. A few days after a child was vaccinated with the contents of the tubes, and a perfect vesicle resulted, from which I filled twelve tubes. The lymph from two of these tubes was mixed on a slip of glass with one minim of a 1-in-50 aqueous solution (1-50th of a grain) of carbolic acid (mixture neutral). In twelve hours the mixture, now dried into a film, was laid by. After ten days it was moistened with water and a child successfully vaccinated with it. Ten tubes were filled from the vesicle, the lymph from which and from the previous vesicle was used for subsequent vaccinations, all of which were successful.

The effects of other volatile media on lymph were also tried in the same way, except that the lymph was exposed to their action only twenty-four hours. The results obtained are strikingly conclusive, as seen in the following

SUMMARY OF RESULTS OF VACCINATION.

Successful.	Reaction of mixture of Lymph and Glycerine.
Carbolic acid (vapour)	Neutral
Carbolic acid and lymph	"
Chloroform	Alkaline
Camphor	"
Sulphuric Ether	"
Iodine	Neutral
UNSUCCESSFUL.	
Chloride of lime	Acid
Sulphurous acid	"
Nitrous acid	"
Glacial acetic acid	"
Hydrochloric acid	"

The above table shows that the mixture of lymph and glycerine of the successful vaccinations was either neutral or alkaline, while that of the unsuccessful was, without exception, acid. Hence it follows that strong acids, or a body causing acidity by chemical affinity—e.g., chlorine,—are destructive of the active properties of vaccine lymph, and therefore *a priori* of various matter and other zymotic poisons.

But to return to carbolic acid; the lymph was exposed to its vapour for thirty-six hours, while the other portions of lymph were exposed to the other vapours only twenty-four hours. Furthermore, carbolic acid was, as stated, actually mechanically incorporated with lymph, and, moreover, lest the genuineness of the vesicles produced by the two kinds of carbolized lymph should be questioned, their lymphs were repeatedly vaccinated "in and in" with unvarying success. These simple facts show that the present extensive use of carbolic acid as an anti-zymotic is a serious delusion. If a minim of vaccine matter is unaffected after being buried for thirty-six hours in the heart of a cubic foot of concentrated carbolic vapour, or after being mixed with the acid in the proportion of 1 in 50 for ten days, it is surely plain that the destructive action of carbolic acid on variolous matter and other zymotic poisons must be nil, seeing that the conditions of the experiments are far more severe than are possible in practice. But premising that carbolic acid is relatively a fair antiseptic (I have found it nothing more), it by no means follows that it is *pro tanto* antizymotic. We have no valid grounds to assume, as is constantly done, that because carbolic acid can prevent or arrest putrefaction, it can therefore annihilate zymotic poison. Antiseption means preservation, not destruction. As proven by the action of carbolic acid on vaccine lymph, it conserves both the physiological and physical properties of the antisepted body; at least it does not impair them. Thus the contagia which it is thought are destroyed are preserved. To get rid of zymotic poison, destructives, not preservatives, must be used. These, as pointed out, are chiefly the mineral acids.—*Lancet*.

PRACTICAL MEDICINE.

DIARRHŒA AND DYSENTERY IN CHILDREN IN THE SUMMER MONTHS.

By J. W. MACKENNA, M.D.

It is a fact as fully established as any other in the history of disease that in this country, when the summer heats become intense, diarrhœa and dysentery appear among children, and destroy many lives. When summer is entering into autumn and in autumn itself the same observation holds, but arising from a somewhat different cause, which for the present we must pass by. The summer heat produces great congestion, especially of the whole alimentary canal, which is proved by the frequent discharge of blood and the constant protrusion of the bowel, and nature seeks to relieve herself of this abnormal condition by the aid of diarrhœa. The opposite of heat is cold, and the obvious cure of the effects of heat on the human body should be those of cold, and my object is to prove that this is exactly so. At present no sooner does an infant become affected with diarrhœa and what is called dysentery—i.e., diarrhœa with effusion of blood—than it is ordered

to be wrapped in flannel, constantly hot bathed, and poulticed with hot linseed over its abdomen, hot drinks are administered, and every means taken to keep up the temperature of the child's body. I dare not venture to say that this is the invariable practice of those who have the treatment and care of children; but it is so general that I believe myself to have ample warrant for its assertion, as during an experience of eleven years as a registrar of births and deaths in one of the best parishes in London (that of St. James's, Westminster) I have never known a single instance in which the treatment above described has not been pursued with children who have died of these diseases in the summer months. The average annual number of such deaths in my sub-district, spread over a number of years, is about 9, which would give in the 124 sub-districts of which London is composed 1116 deaths. From this number must be deducted those infants in whom life is, as it were, so loosely fastened that at the slightest shock it separates and departs. This would make perhaps 8 or 10 per cent., the remainder being an entire and unnecessary waste of human life. A child of any age seized with diarrhœa at this season should be stripped of all its clothing except a napkin; should be kept perfectly dry on a hair mattress and sheet; should never be taken in arms; should be bathed in ice-water after every motion; should get ice-water with, if very weak, a few drops of brandy to drink. Its milk should be iced or mixed with ice-water; and on the cessation of the diarrhœa, which immediately ensues, the child is greatly comforted, and its recovery hastened, by an appropriate dose of laudanum, chloric ether, and ammonia at the usual intervals. Where the attack is so sudden and so violent as to endanger life, especially in very tender infants, ice-water injections have an excellent effect. The obstinate vomiting which sometimes complicates these cases entirely ceases; nor did I ever once see a child eject its food while under this treatment. In fact, the disease immediately acknowledges its antidote, and more or less quickly disappears; and I say that after an experience of twenty years no harm has ever followed from this treatment, but that in every instance where the child has been of a strong and healthy constitution it has been successful. Two cases follow which will illustrate the above observations.

A year ago a young lady relative sought my hospitality, driven, as she said, from the house of a friend whose agony she was unable to witness at the immediately expected death of her first-born, an infant of seven months old. A hospital physician and a general practitioner were in attendance for several days, and had that morning formally given the child up. The young lady at once returned, charged with my advice. The patient was immediately put into a bath, half water half ice; iced-water with a little brandy was ad-