considered this distension an indication for calomel, and gave a dose of 3 grains, and in an hour another dose of 1 grain. This started all the choleraic symptoms again, profuse rice-water diarrhœa and vomit, colic and cramps in the limbs, and then collapse. The dispenser, seeing his mistake, gave another ¼ grain of morphine, with the same results as previously. The case did most happily.

I have had many hundreds of cases all treated under the worst possible conditions in their own filthy huts without any ventilation or light and without any nursing, and the subjects were tea estate coolies and Bengalees. If the morphine and water treatment has been so successful in such untoward conditions, how much more would it be so under favourable circumstances!

The General Physiological and Therapeutic Action of Hydrotherapy.*

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Hydrotherapy, which traces its origin to the mists of antiquity, was in ancient days closely allied with the mysticism of religion, saw its days of magnificence under the Roman Emperors and languished during the dark and barbaric Middle Ages, the prey of the quack and charlatan. It rose and fell, like the tides of the sea, until William Winternitz, the modern master, placed it upon its present permanent physiologic basis. Since that time, German, French, English, Italian, and American investigators have added to our quota of knowledge. Its marvellous adaptability, the extent of its physiological action, and its therapeutic power have placed it in the permanent achives of the modern therapeutician.

Water is found universally and is a part and parcel of mankind's daily necessity. Its temperature range is wide, varying from the vapour of steam to its crystalline state—ice—a range of some 150-155 deg. F. (65-73 C.). It absorbs heat and cold rapidly. and in return rapidly loses its temperature content to the body with which it comes in contact, making it the agent par excellence for the application of thermic changes to the external surface of the body. Besides posssessing a cleansing, antiseptic action, water by its own weight, when under atmospheric pressure, enables the hydriatist to produce mechanical effects of varying degree, thereby influencing the peripheral nerve terminations. The ease and rapidity with which this agent may be changed and varied in a precise and certain manner, so that the attendant has under his control within a few seconds of time the temperature, pressure, form of application and duration, render it without question the ideal remedy for these effects. It is adaptable to any, and all portions of the body with a precision and satisfaction offered by no other agent. Besides the undoubted scientific value of water as a physiologic-therapeutic agent, may be mentioned its easy accessibility and economy.

The physiological action of hydrotherapy is co-extensive with the tissue and functions of the human body and its responses may be made general or local, according to the extent and location of the application. These results vary according to the method of application, its extent, the duration, temperature, mechanical effects, and such procedures as precede and follow the treatment. Taking a normal or "neutral" line (94-96 deg. F.), temperature effects are produced as we rise above (warm, 96-98 deg. F.; hot, 98-104 deg.; very hot, 104 deg. and above) or fall below (tepid, 92-80 deg. F.; cool, 80-65 deg. F.; cold, 65-55 deg. F.; very cold, 55-34 deg. F.) this line. The characteristic of the neutral zone is the suppression of thermic stimuli, the cessation of cutaneous impressions, sedation and nerve rest. Above and below this line, the pertubations of the sensory nerve endings are conveyed to the central nervous system, giving rise to myriads of minute impressions, the registration of thermic changes with their resultant effects both general, local, reflex, and transferred. The system rallies to meet the changes, responds to its fullest ability to throw them off or counteract their effect, and we then have those wonderful and intricate phenomena known as "reaction," more marked in its response to cold than to heat. The alternate application of heat and cold accentuates the response to each, where the application is made in proper ratio. In the short limits of this monograph, generalities can only be indulged owing to the extent and complexity of the subject.

Upon Temperature of the normal body, heat may cause a rise from one-half to one degree according to the author's personal experiment. This is rapidly counteracted in the normal individual by the outburst of perspiration, radiation of heat and heat loss through evapora-

*A Paper read at the International Physio-Therapeutic Congress in Rome.

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