

with pelvic pains and marked anæmia. The curette removed a quantity of pale fngosities; the patient was cured.

Case III.—Hemorrhages recurring at intervals for six months in a child of fourteen. Cure by curettement.

Case IV.—Obstinate hemorrhages in a patient, aged fifteen years, which had continued for six months in spite of the administration of iron, ergot, hydrastis, and hot douches. An operation was refused and the patient eventually succumbed.

Congenital Prolapse of the Uterus—BALLANTYNE and THOMSON (*American Journal of Obstetrics*, 1897, No. 2) report two cases, making eight which have been published. They call attention to the importance of distinguishing true prolapse from hypertrophic elongation of the cervix, although the two conditions may coexist. Congenital prolapse is commonly associated with spina bifida, prolapse of the rectum, and sometimes flat-foot. These infants usually die soon after birth, probably from causes attributable to the presence of the spina bifida. The prolapse may be partial or complete, but rarely gives rise to symptoms. The etiology is usually to be sought for in faulty innervation due to the spina bifida; but increase of the normal abdominal pressure, unusual size of the pelvis, and hypertrophy of the cervix or corpus uteri are doubtless contributing factors.

HYGIENE AND PUBLIC HEALTH.

UNDER THE CHARGE OF
EDWARD F. WILLOUGHBY, M.D.,
OF LONDON;

AND

CHARLES HARRINGTON, M.D.,
INSTRUCTOR IN MATERIA MEDICA AND HYGIENE, HARVARD MEDICAL SCHOOL.

Soaps as Disinfectants.—Much experimental work has been done within the past fifteen years to determine the place which soaps should occupy as disinfectants. In 1881 Koch showed that potash soap, 1:5000, would materially diminish the growth of anthrax-bacilli, and 1:1000 would prevent it completely; and that potash soap was eight times as powerful as potash itself. In 1885 Kuisl asserted that while it acted on anthrax, it was quite inert against other kinds of bacteria. Thus, typhoid bacilli would thrive in the presence of 2 per cent. of soft soap, as would also the spirillum of cholera. In 1890 Behring experimented with forty different soaps, and concluded that their disinfectant power was dependent on their alkalinity. In 1893 Nijland, experimenting with a soft soap containing 42.7 per cent. water, a medicated soap containing 7.3 per cent., and a hard washing-soap containing 14.5 per cent., found that when used in 0.21 per cent. solution the first would kill

cholera germs in ten minutes, the second in fifteen, and the third not completely in fifteen, but in 0.30 per cent. solution within one minute. Jolles, in 1893, tried five soaps, and proved them to be powerful agents; and in 1895, experimenting with another soap, which was almost neutral in reaction, containing but 0.041 per cent. free alkali, found that typhoid bacilli were sterilized by 1 per cent. within twelve hours, by 3 per cent. within two hours, and by 6 per cent. within fifteen minutes, at 4° to 8° Centigrade. At 18° C. the action was weaker. Practically the same results were obtained with other bacteria.

DR. RICHARD REITHOFFER (*Archiv für Hygiene*, xxvii. H. 4), who quotes the above-mentioned authors, has given the results of new experiments conducted by himself. He tried (1) a common soft soap containing 39 per cent. water and traces of free alcohol; (2) a white almond soap perfumed with nitrobenzol, containing 34.3 per cent. of water and 0.062 per cent. free alkali; and (3) a solid patent potash soap containing 8.4 to 13.8 per cent. water and 0.031 free alkali. The last mentioned, in 1 or 2 per cent. solution, was effective to kill infectious material in bouillon, but 0.2 and 0.5 per cent. did not suffice. Ten per cent. solution killed cholera and other cultures in distilled water in half a minute, and in half and quarter the strength the same result was achieved not so quickly, but in a very short time. All three of the soaps proved to be highly effective in even 1 per cent. solution. Cholera-growths were killed by this strength in from a half to one minute, but the Massaua vibrio required from three to five minutes, whichever of the three soaps was used. In $\frac{1}{2}$ per cent. solution the patent soap killed cholera in five minutes, but the Massaua vibrio at the end of a half-hour was not completely destroyed. The soft soaps proved to be less active, but the almond soap killed all within three to five minutes. From his experiments he concludes that for washing body- and bed-linen, clothing, wooden and iron furniture, so that cholera-growth shall be completely destroyed within five to ten minutes, 4 to 5 per cent. soap solution is probably efficient under all conditions. He points out, however, that one must be careful about soft soaps, the common article of the shops being often unclean and inferior, and suggests the possibility that Kuisl used such in his work.

Further experiments with typhoid bacilli and bacterium coli proved that here, again, the soaps have a high disinfecting-power, and under conditions when other means are not at hand in typhoid they may be used for practical disinfection. But much higher strength must be used than against cholera, and the disinfection of the hands requires very careful washing and plenty of soap. Under favorable conditions it requires 10 per cent. solution of soap to kill typhoid bacilli within a minute. Five per cent. solution requires from three to ten minutes, according to the sort of soap; thus, almond soap three minutes; soft soap, ten minutes. Of the three soaps, the patent potash soap alone seemed to act as strongly against the bacterium coli as against the typhoid bacillus. Unfortunately, the soaps fail utterly, or at least so far as practical disinfection is concerned, against pus cocci. *Staphylococcus pyogenes aureus* will remain unchanged an hour or more in 18 to 20 per cent. soap solution; hence in surgical practice soaps alone cannot be regarded as efficient.

In the experiments against the bacillus typhosus and bacterium coli the

almond soap proved to be much the most powerful of the three, and the results suggested that nitrobenzol, with which it was perfumed, might have some disinfectant power. Nitrobenzol is almost insoluble in water, but readily soluble in soap solution. Experiment showed that soap solution was made more powerfully disinfectant when $\frac{1}{2}$ per cent. nitrobenzol was added.

Another soap, a "potash cream soap," containing 40 per cent. lysol, was tried against typhoid, bacterium coli, and staphylococci, and proved to be no more powerful than the other soaps excepting against the staphylococci; but here again it proved much weaker than a solution of lysol alone of the same lysol strength. Experiments with carbolic soap showed that carbolic acid also is weakened by the presence of the soap. Thus it appears that the addition of disinfectants to soap is not always advantageous, and that the old way of first washing the hands with soap and then afterward treating with disinfectants is the better one.

A New Process for Producing Sterile Drinking-water.—STABSAZT DR. SCHUMBURG (*Deutsche medicinische Wochenschrift*, March 4, 1897) recommends a new process devised by himself for the quick sterilization of water. It is one which in five minutes kills nearly all water-bacteria and all pathogenic bacteria found in water. The agent used is bromine-water, which, in its turn, after five minutes, is made harmless by means of ammonia, and a clear, tasteless, sterile water is the result. The amount of bromine necessary is very small—only six centigrammes per litre. He uses a solution of twenty parts each of bromine and potassic bromide in one hundred of water, and of this solution 0.20 c.cm. proves to be enough to sterilize a litre of Spree water in five minutes. Very hard waters and grossly polluted river- and marsh-waters require larger amounts, on account of the lime-salts in the former and ammonia in the latter uniting with a part of the bromine before it has an opportunity to exert its disinfectant power. With such waters it is necessary to add the solution until a faint yellow color is produced and persists at least a half minute.

To do away with the bromine of 0.20 c.cm. of the solution an equal volume of 9 per cent. ammonia is enough; and thus, whatever the volume of the bromine solution used, a corresponding volume of 9 per cent. ammonia is necessary.

After treatment the water has practically no taste and is absolutely clear, while the resulting bromine compounds amount to so little as to merit no notice. The method was proved with all sorts of pathogenic organisms, and is recommended particularly for troops in quarters or bivouac, for sterilizing water in the tropics, especially on expeditions, and filling ships' water-tanks, for individual use during the prevalence of epidemics, for the quick preparation of aseptic water for the practising physician, etc. With a kilogramme of bromine (costing in Germany from five to six marks) one can sterilize sixteen thousand litres of water.

Formaldehyd as a Practical Disinfectant.—The fact that the Tollens, Gambier, Trillat, and Krell lamps for generating formaldehyd are not capable of easily producing it in sufficiently large amount for practical use led PROF.