

strophometer tube at a definite height. The height I used in W. H——'s case was twenty-eight inches (that is, perpendicularly above the level of the patella). But obstinate cases might require a greater pressure. It may just be noticed here that the blood-pressure in the carotid artery is about 100 inches, but that in the smallest arteries and in the veins is much less. Well, when the bandage has been applied, the water in the strophometer tube should just overflow its orifice. If the water does not reach high enough, a little more water may be poured into the tube through a funnel. But if the water will rise much higher, a little (only a little) should be allowed to escape. If the pressure cannot be accurately adjusted without adding or subtracting more than a small quantity of the water in the bags, the bandage had better be reapplied altogether. The above process may seem a troublesome one. I do not think it would be found so in practice. I believe some means of gauging the force mathematically is essential if the use of compression is to be ever cultivated into a perfectly safe and painless process. The bags should be made of the softest rubber, and without rigid, unpleasant seams.

4. With regard to the length of time of a single application, I may state that the patient, W. H——, could bear, without much discomfort, a pressure of twenty-eight inches of water for eight hours continuously.

5. A common, cheap elastic bandage should be worn months after the cure of chronic cases, to prevent relapse. Martin's advice may be followed, and aspiration be combined with elastic pressure when the effusion is great and the case obstinate.

NOTE ON THE OCCURRENCE OF CEREBRO-SPINAL MENINGITIS.

BY DR. H. V. CARTER,
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THE local epidemic of fever consequent upon immigration of the famine-stricken, still lingering (mostly through contagion), all serious cases admitted into the J. J. Hospital continue to be watched; and amongst those seen last month was the following:—

R. Y——, aged thirty-five, resident, a labourer, living in an infected locality; somewhat emaciated, feverish (temperature 102°, pulse 120), and only semi-conscious. There was tenderness on pressure over the back and limbs; chest-sounds normal; abdomen supple; hepatic and splenic tenderness, with slight splenic enlargement; no jaundice; tongue coated, white, moist; state of the bowels unknown; bladder not distended. No spots could be seen in his very dark skin, nor were spasms observed; the symptoms, in short, being those of advanced "remittent" fever, with cerebral oppression. History and duration unknown. No spirillum in the blood. On the third day there occurred a distinct fall of 3°, without sweats, dry cough, and incipient consolidation of the base of the left lung going before. Temperature 99·8°; pulse 128, and the patient became slightly conscious. Immediately afterwards, however, the pyrexia returned (temperature 101° to 102°), with renewed insensibility, and death on the fifth day of admission. The treatment consisted of ice-bags, enemata, and stimulants.

Necropsy, twelve hours after decease.—Rigor mortis present; blood dark and semi-fluid.—Brain: Great congestion of the meninges, no hæmorrhages, some turbid serum in the arachnoidal sac, and all over the convexity of both hemispheres a thin layer of thick, greenish-yellow pus, which was located between the pia mater and arachnoid, following the bloodvessels, and accumulating in the sulci and fissures of the cerebrum. At the base of the brain the matter was especially abundant in the inter-peduncular spaces, there enveloping the cranial nerves; it had passed round the middle cerebellar peduncles and collected above, over the valve of Vieussens, and it encroached upon the upper surface of the central lobe of the cerebellum. The ventricles of the brain contained turbid serum; the brain-substance was somewhat congested, softened, and wet. Spinal cord hardly changed in the cervical region, but further down the subarachnoid space was occupied with puriform lymph similar to that found upon the brain, and this could be traced nearly as far as the lumbar enlargement. The effusion was not quite

uniformly disposed, and it was limited almost wholly to the posterior surface of the cord; it gave me the impression of being continuous with the cerebral collection, although the streaks seen alongside the vessels of the pia mater in the cervical region of the cord were only narrow and sparse. The spinal membranes were congested, but neither arachnoid nor pia mater was much thickened; the substance of the cord somewhat soft and pale. Weight of brain 2 lb. 15 oz.; of cord 3 oz.—Chest: The left lung was more or less consolidated throughout, but mostly below; right lung healthy; clots in the heart, valves healthy.—Abdomen: Liver rather small, of normal tint, but showing disseminated patches of fatty degeneration; spleen shrunken, healthy-looking; kidneys of normal aspect or only slightly congested; mucous membrane of large and small intestines healthy-looking. (Notes of the assistant-surgeon in charge, with some additions.)

Remarks.—If the notes taken during life (when I frequently saw the patient) do not record much that is pathognomonic of cerebro-spinal *typhus* (?), yet this circumstance renders the case all the more striking, and its real character seems to be placed beyond doubt by the results of the autopsy. I am not aware that similar instances have been published in India (Morehead, in his first edition, vol. i., p. 144, has a case of meningitis, in which the cord unfortunately was not examined), but even if it be so, the occurrence of this species of continued fever in connexion with ordinary and recurrent typhus (not to mention enteric fever, which is by no means rare) is well worthy of notice; and the discrimination now made is to some extent confirmed by milder cases of cerebro-spinal fever lately seen here, which have survived under care of the able physicians of the J. J. Hospital.

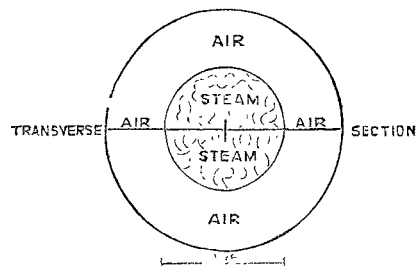
Grant College, Bombay.

DESCRIPTION AND SKETCH OF CONDENSING VENTILATOR.

BY SURGEON HENRY M. LEVINGE, M.B., R.N.

(Communicated by the DIRECTOR-GENERAL OF THE MEDICAL DEPARTMENT OF THE NAVY.)

I BEG to forward a drawing of a piece of apparatus which appears adapted for ventilating ships in a most economical and perfect manner—I say economical, because, in steamers and those ships making their own drinking-water, no expense need be incurred; for, as in ordinary modes of distilling, "the latent heat of evaporation" is given to water, so I propose giving it to the air, at least so much as may be required for ventilating purposes.



Anyone may have observed jets of heated water issuing from steamers under weigh, while people on board are shivering with the cold and blocking up ports, hatches, &c. Why should all this heat be allowed to escape when work still remains to be done? If, during a breeze, the force of the wind were employed to drive air against a heated surface, such as the conical top of the condensor, it might be heated to any degree required *before* arriving at the place to be ventilated, thus removing the objections to a draught; for only *cold draughts* are objectionable. It is a known fact that small overcrowded places cannot have their air changed sufficiently often (to ensure even a moderate degree of purity) without causing draughts.¹ Stoves, steampipes, &c., in cabins and saloons heat the air only *after* arrival, thereby presupposing delay, vitiation, &c., going on while the air is being heated, as well as delaying its escape; for heated air,

¹ Vide Parkes's Manual of Hygiene, p. 139-40.

owing to its lessened specific gravity, has a strong tendency to rise.

During calms the cowl might be removed, or faced opposite the prevailing air, thus reversing the action and turning it into a powerful extracting shaft. Experimenting with a model (which is at present in the Parkes Museum of Hygiene at University College) extracted air at orifice marked 100° F., the external air being 60°. The difference, height, and area of the heated column being known, the air extracted in a given time can be easily circulated by Montgolfier's formula. Where ice is available a very considerable reduction in temperature could be effected.

It is to be observed the outer casing does not become heated, being surrounded by air at all times in rapid motion. It appears the diameter of the condensor should be half that of the air shaft, and its height from four to five feet. Supposing the diameter of condensor to be one foot, the diameter of air-shaft two feet, the area of air-shaft (i.e., clear space for passage of air) would be 339 square inches; the same area a circle of twenty-inch diameter would have. A condensor, therefore, half the diameter of air-shaft does not interfere so much with the air-space as might appear.

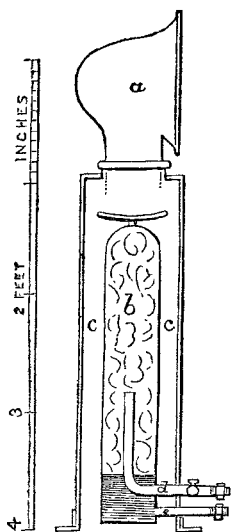
CONDENSING VENTILATOR.

Intended for use on board ship as a means of heating the air before delivery or extracting during calms by the heat evolved in the condensation of steam, which steam may be used in a condensed form for drinking or other purposes.

To heat during cold weather.—Allow steam to pass in through the cock. Face the cowl to the breeze. Water will be delivered by lower tube. As passing through the shaft, air may be raised 25° F.; any lower temperature required may be obtained by lessening the supply of steam.

Extraction during calms.—Either remove the cowl or face it opposite the prevailing wind. The heat of the condensor being communicated to the surrounding air, a strong up-current will be induced. The outer casing does not become heated.

Royal Naval Hospital, Bermuda.



a, Removable cowl. b, Condensor. c, Air shaft. d, Steam pipe. e, For drawing off water.

A Mirror

OF

HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

UNIVERSITY COLLEGE HOSPITAL.

TWO CASES OF STONE IN THE BLADDER: LITHOTRITY IN ONE; REPEATED LITHOTOMY IN THE OTHER.

(Under the care of Mr. BERKELEY HILL.)

FOR the notes of this case we are indebted to Mr. G. W. Wray, ward clerk.

CASE 1.—J. S—, sixty-three years of age, farmer, from Northamptonshire; a stout, florid man, with commencing atheromatous degeneration. Three years ago he had increased frequency of micturition after exercise. A year later he passed a small calculus, and in the succeeding twelve months he passed ten more. During this time he had no pain in the bladder or urethra. Seven months since he had pain in the urethra after micturition, with blood in the urine after exercise. He was sounded by two surgeons, but neither crushed the stone.

On admission there was micturition five times by day, twice by night. Urine cloudy, neutral, sp. gr. 1018, with a

trace of albumen; no blood or casts. On the second day after admission the stone, three-quarters of an inch in diameter, was crushed, the debris being uric acid. The operation was almost painless. During the next three days fragments and fine debris passed without difficulty; there was some pain during micturition, but not afterwards. On the sixth day the second crushing was done, and on the tenth day the third crushing. In seven sittings the whole stone was reduced to fragments small enough to pass away easily, with the exception of one fragment weighing eight grains, which, three days after the penultimate crushing, travelled along the urethra until it became lodged in the navicular fossa, whence it was extracted by the house-surgeon, without much difficulty or pain to the patient. The constitutional disturbance which followed the passage of this fragment was identical with that observed after internal urethrotomy, where urine is voided during the first fifteen hours after the operation per urethram. The patient's temperature had been previously normal during his stay in hospital. Fifteen minutes after the extraction of the fragment, and immediately after passing urine, a rigor of twenty-five minutes' duration occurred, at the close of which shiver the temperature was 99.4° Fahr. In fifteen minutes more the temperature rose to 103.2°, and in one hour after the extraction of the fragment it reached its maximum of 104.4°, which height it maintained for one hour and a half, then fell slowly to normal in sixteen hours, where it remained thenceforth. The urine had been previously free from blood-discs and albumen. That passed two hours after the extraction had a few blood-discs, leucocytes, and epithelium cells, but no granular casts. A second sample, passed nine hours after the extraction, had no red discs, but several granular casts and leucocytes. The urine contained granular casts in small quantity for three or four days afterwards, and traces of albumen. But the patient, after the first sixteen hours, felt perfectly well and free from pain, and left the hospital in good health on the twenty-ninth day of his stay.

This kidney affection occurs frequently after internal urethrotomy, and would probably be always detected if search were made when the urine is voided along the incised urethra, and not through a catheter, during the first sixteen or eighteen hours after the incision. In this instance the urine irritated the scratches produced in the urethra by the fragment as it travelled along that tube. To healthy kidneys the shock and subsequent congestion is probably of small importance, but they may seriously affect kidneys already much degenerated by repeated attacks of interstitial inflammation, a common condition in cases of long-standing stricture.

CASE 2.—J. F—, sixty-six, a farmer from Lincolnshire, a well-nourished, tolerably vigorous old man. The history of the case is as follows:—Difficulty of passing urine began eight years ago. Since then patient has drawn his urine by catheter twice or thrice daily, with increasing difficulty in voiding urine, and, during the last six months, great pain in testicles. Now uses catheter every hour, and urine comes wholly in this way. Prostate enlarged until posterior border is only just reached by the finger-tip. The urine turbid, strongly alkaline, one-third albumen, copious deposits of phosphates and pus. Rest in bed, with regular evacuation and washing of the bladder, removed pain, and rendered the urine clear and neutral; the albumen diminished to traces, and the deposit to mucus in small amount. By lateral lithotomy a uric-acid calculus of sixty-six grains in weight was removed. Thenceforth the patient made a steady recovery, but his inability to pass water returned as the wound closed, and he left the hospital six weeks after the operation in good health, but unable to void urine without the catheter. In two and a half months he returned to hospital, suffering from severe cystitis. Rest in bed, couch-grass decoction, and washing the bladder with a two-grain solution of quinine, removed the pain and all offensive odour from the urine, though much pus was still mingled with it. By lateral lithotomy a phosphatic stone was removed. It crumbled somewhat in extraction, but that which was preserved weighed 205 grains.

Two days after operation the bladder was found again distended by sixteen ounces of urine, notwithstanding the free incision made through the prostate at the operation. Thenceforth the recovery was steady, but accompanied with speedy loss of power to eject urine without the catheter. There was consequent chronic cystitis, which favoured the production of mortar-like concretions of phosphates, which, by means of the lithotrite and Clover's washing bottle, were