CASE VI was of unusual interest, having been admitted into a medical ward with dulness in the right side of the chest, suggestive of a tumour of the pleura, in December, 1896. She was 26 years of age, and by September, 1897, had undergone considerable expansion of the right side of the chest and region of the liver in the upper abdomen. By this time there was no difficulty in recognising the case to be one of hydatid of the liver, for which operation was performed on September 29th. A preliminary tapping in the epigastric region revealed the clear saline fluid of hydatid. An incision was made in the middle line, and on exposing the liver a further tapping was done, to reduce the size of the cyst, which was then incised, liver substance to the thickness of half an inch or more having to be divided. The cyst membrane was unusually thick, but easily removed. After attaching the liver to the abdominal wall, the cavity was drained as in the previous case, and she rapidly gained flesh and strength.

CASE VII was sent to me by Dr. Seagrave, of Milnthorpe, a boy, aged 14, who occupied a private ward in the Royal Infirmary. He arrived at my house in good health on October 30th, 1897, when I drew off about half an ounce of the usual clear saline fluid with a fine trocar. The operation of incision and evacuation was performed at the hospital some twenty-two hours later. On opening the abdomen fluid escaped, which I was surprised to find already purulent; while the omentum and all the neighbouring parietal and visceral surfaces were brightly injected. The liver was opened and the cyst extracted, slightly purulent fluid escaping also from it; the opening in the liver was attached to the abdominal wall, and all the upper peritoneum well washed out. A long glass tube was then passed from the epigastric opening down into the pelvis, and hot water washed through, when I was somewhat dismayed to find abundant flakes of puriform lymph escaping. The abdomen was then opened in addition above the pubes, and copious hot irrigation of the whole cavity through both openings carried out for a prolonged period, with a little zinc chloride and tincture of iodine in the water. There was universal peritonitis, as evinced by vascular injection everywhere, and by the purulent fluid above referred to; but there was no adhesive lymph anywhere. The abdomen was closed in the epigastric region above and below the opening in the liver, and also at the suprapubic wound except where a glass tube drained the pelvis. A certain amount of collapse occurred on the day of operation, and some sickness a couple of days later by the intrusion of a knuckle of intestine into the wound beside the tube. But this was reduced, the tube removed, two spare stitches tied, and the abdomen finally closed. The patient was convalescent in a few days, and returned home in good health after a month with a small packing of cyanide gauze in the much-reduced hepatic cavity. He wrote in January, 1898, reporting himself fully healed and well.

GALL STONE.

CASE VIII.—A woman, aged 42, had suffered for more than 15 years off and on from hepatic pains and occasional jaundice, with latterly tenderness and swelling over the gall bladder. After treatment at many hands, with temporary relief, she was admitted into a medical ward in the Royal Infirmary, and transferred to me after a period of observation. On April 1st, 1897, the abdomen was opened over the obviously distended gall bladder and the latter incised, with issue of many ounces of fetid pus and afterwards bile. The opening was stitched to the peritoneum and muscles in the middle of the wound, while omentum was drawn into the opening and attached to the wall above and below the aperture in the gall bladder, to prevent leakage of the septic discharge into the serous cavity. With the fluid that first escaped there was a single gall stone about half an inch wide. The patient recovered quickly without notable incident, and left hospital in less than four weeks. After a period of convalescence at the seaside, she resumed her duty as cook, in excellent health.

CASE IX.—A woman, aged 43, was sent to me from Kendal by my brother, who, in consequence of a two years' history of pain in many attacks and a state of intense jaundice of three months' duration, concluded that the case was one of gall stones. On May 26th, 1897, the abdomen was opened over the gall bladder, which could not at first be seen, and only with

difficulty felt, under the liver in a very contracted form. On feeling further the common bile duct and gall bladder, and I think the cystic duct also, were manifestly packed with numerous concretions. The anterior end of the gall bladder was opened and many small gall stones removed with a small lithotomy scoop. One much larger, over half an inch in width, was broken with the scoop, and then dislodged from the common duct. In all 73 were taken out, and on probing downwards the instrument passed a long way, evidently into the intestine. The gall bladder was stitched to the deeper parts of the wound and a glass tube put in. The patient made a slow but excellent recovery. Retention of urine necessitated the catheter for a few days, during which she had also uneasiness about the wound. The jaundice disappeared very gradually, but was gone in a month's time. After a fortnight the tube was replaced by a packing of cyanide gauze dipped in warm water. At the time of operation a scanty brownish biliary mucus escaped, but afterwards a copious discharge of green fluid filled the dressing. She was healed in less than five weeks and returned home. On November 15th, 1897, I heard that she had had occasional twinges of pain in the affected region, and some flatulent distension, due to habitual constipation, but that otherwise she kept well. I saw her on August 31st, 1898, in perfect health.

REMARKS.

The cases of hepatic abscess resolve themselves chiefly into questions of technical surgery; and yet not altogether, for although the diagnosis was in each case confirmed by exploratory puncture, that incident did not occur in the third instance until the moment preceding the complete evacuation by incision. Moreover, the absence of fever, although the abscess proved to be fetid, and the total absence of adhesion in either peritoneal or pleural cavity, are significant facts; the former in the medical analysis of symptoms and the latter in relation to the details of surgical treatment.

In the cases of hydatid the question of puncture is evidently one of considerable importance. In Case iv that act sufficed, though several times repeated, to get rid of the disease without any ill-effect on the patient's health. She was a mere child, which may have been in her favour. And puncture is a recognised mode of treatment, formerly relied on almost as a matter of routine, but one that may now be profitably reviewed as fit subject for discussion. In Case vi no puncture was made until the moment preceding incision, and therefore without possible harm. In Case v puncture was performed on several occasions, without local or constitutional injury. But although twice at intervals the fluid evacuated was clear and saline as usual, on the next occasion it was turbid, and on the last purulent and fetid, on which incision and evacuation were arranged for the morrow. Case vii appears to me, however, to have been in great jeopardy, owing to universal peritonitis, purulent and flaky, which is apparently traceable to nothing but the puncture performed less than twenty-four hours before. It is not easy to understand how this could result from issue of the clear saline fluid ordinarily filling a hydatid cyst. Be the cause what it may, it appears, as I am informed, to be the experience of our Australian brethren, who are understood to meet with hydatids on a much larger scale than we do; that cases submitted to mere puncture, single or repeated, prove fatal in a by no means insignificant proportion—a statement which, coupled with this example, will make me very chary of puncturing in future, except when prepared to incise and evacuate immediately.

AMMONIUM CHLORIDE IN THE TREATMENT OF TROPICAL DYSENTERY.

By SURGEON-GENERAL WILLIAM STEWART, M.D.
R.A.M.C. (Retired).

FOR some time past various letters have appeared in the BRITISH MEDICAL JOURNAL in which ipecacuanha is described as "useless," and sulphate of magnesia is lauded, at least in one instance, as practically a specific in the treatment of tropical dysentery. In the BRITISH MEDICAL JOURNAL of May 7th, Dr. W. S. Attygalle, of Colombo, Ceylon, in an interesting letter, offers to place chloride of ammonium in the same list.

My experience leads me to differ from all these writers in regard to ipecacuanha being useless. In the course of my long service in various parts of the East, Ceylon among the rest, I have found it most valuable in cases of acute tropical dysentery. In a pamphlet published in Rangoon in 1870, and in subsequent papers in the *Indian Medical Journals*, the *Lancet*, and *BRITISH MEDICAL JOURNAL*, on the Treatment of Hepatic Disease by Chloride of Ammonium, I pointed out, not only the special curative action of the ammonium chloride in congestion of the liver and other hepatic affections, but its efficacy also in dysentery, more especially when that disease was dependent on hepatic trouble, simple enlargement, hepatitis, etc. In my pamphlet I gave the case of an officer who was invalided from the Andamans on account of dysentery, and who *en route* to England came under my care at Rangoon. In his case ipecacuanha and other treatment had failed, the dysentery being the result of hepatic and portal congestion. One or two doses of chloride of ammonium relieved him of all his distressing symptoms; the salt acted characteristically and effectually. Indeed, he was so well in the course of a few days that he was undecided whether he should take advantage of the leave granted him for the recovery of his health.

At p. 25 of my book on the *Treatment of Hepatic Disease by Chloride of Ammonium*, London, 1879, I gave an explanation of the special action of the drug in hepatic disease, and showed how a local depletion is not only effected in the congested or inflamed liver by each succeeding dose but how the entire portal circulation is relieved from congestion, preventing the occurrence of dysentery, so apt to supervene in hepatitis, and particularly in hepatic abscess. In a paper in the *Lancet*, 1891, vol. ii, p. 707, will be found my latest views on the subject. The case of the officer above described shows the value of the ammonium chloride in what may be called hepatic dysentery, and points to the necessity of a careful examination of the hepatic region in all cases of dysentery, inasmuch as the usual symptoms of hepatic congestion, pain, etc., may be masked by the severity of the dysenteric symptoms, the patient, perhaps, never complaining of liver symptoms at all. In but 1 of the 153 cases of hepatic disease (shown in Table II, p. 78 of my book, in which chloride of ammonium was persistently administered from an early period of the disease) was dysentery observed to supervene, an occurrence which under previous methods of treatment was not infrequent. Its occurrence in this instance was in all probability owing to the inflammation of the liver going on unchecked for six days after admission to the hospital through the early symptoms simulating and being mistaken for gastritis. The true nature of the disease having been ascertained by careful examination, the chloride of ammonium treatment was at once commenced. After five days (during which the remedy was persistently administered with much relief to the pain in the hepatic region and decrease of the fulness and tenderness of the right side of the chest and the abdomen) dysenteric symptoms supervened, and for three or four days the dejections were fetid and frequent, as many as seven or eight in the twenty-four hours, and this in spite of ipecacuanha administered in large doses in enemata, as there was fear of damage to the repair going on in the liver and related parts through vomiting if given by the mouth.

At length, as the patient was rapidly sinking, 30 gr. were given by the mouth, with attention to the usual precautions to prevent vomiting. The dose was retained without discomfort, and acted like a charm; from that time the patient was free from dysentery. Under the continued use of the chloride of ammonium for the hepatitis, he ultimately made a good recovery.

Here, then, we find a single dose of ipecacuanha administered with due precautions as to its being retained in the stomach, once and for all arresting acute dysentery secondary to hepatic trouble, which the chloride of ammonium failed to subdue single-handed. The older writers held that the "antidysenteric root" was less efficacious in cases of dysentery coexistent with, or secondary to, hepatic congestion or inflammation. The result attainable by the combined ipecacuanha and ammonium chloride treatment of such cases is confirmatory of this view, and offers one explanation of the apparent inutility of ipecacuanha in certain cases of dysentery—that is to say, in those cases coexistent with, or

secondary to, hepatic congestion or inflammation. Again, the uselessness of trying to cure dysentery with small doses of ipecacuanha should ever be borne in mind, for in addition to the large dose being the only effectual one, it is less likely to cause vomiting than a small one. Ipecacuanha can now be obtained from which the emetine has been extracted. It is said to act equally well in dysentery. Should this prove to be the case it will be a great desideratum.

The diseases under consideration being so often associated, and being the cause of so much sickness, invaliding, and mortality among Europeans resident in the tropics, must be my excuse for the length of this communication. The subject is one of much interest and importance in view of the great colonial expansion now taking place.

THE EPIDEMIC MALARIAL FEVER OF ASSAM, OR KALA-AZAR, SUCCESSFULLY ERADICATED FROM TEA GARDEN LINES.

By LEONARD ROGERS, M.D., M.R.C.P., B.S., F.R.C.S.,
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THE MODE OF SPREAD OF KALA-AZAR.

I HAVE shown in my report¹ on the diseases known in Assam under the name of kala-azar, or black fever, which has decimated a tract of the Brahmaputra Valley over 200 miles in length, that it is an epidemic malarial fever which arose owing to the intensification of that of the notoriously unhealthy district of Rungpore in Lower Bengal by an extraordinary succession of five out of six years of deficient rainfall in the Seventies. I traced its spread along the lines of communication throughout the affected districts of Assam up to the present time. I also showed that the disease is undoubtedly slowly communicated from person to person, although it is generally necessary for a person to live in the house of a sufferer from the disease, or at least to reside for some time in a badly-infected village in order to contract the fever. I also recorded my opinion that the infection (using this word in its widest bacteriological sense) is usually indirect after the virus has passed through the soil. This, it will be observed, is a very different thing to saying that it is as infectious as small-pox, an opinion which some of my critics have incorrectly attributed to me. I further recorded evidence to prove that the disease has a very seasonable distribution to that of ordinary malarial fevers in Assam, and declines to a very great extent in the cold dry four months of the year, when the ground is dried up, during which time infection rarely occurs.

ADVISED MEANS TO CHECK ITS SPREAD.

On these and other observed facts I based my recommendations for controlling the epidemic, the most essential of which was that during the cold weather months when the fever was at a minimum, all the healthy people in any infected coolies' line or village should be removed to a new site, which need not be more than a few hundred yards from the old ones.

RESULTS.

Fortunately, as several medical officers of tea gardens in Assam (from whom I received much assistance in the course of my investigation) were willing to carry out my plans in anticipation of the publication of my report, I am now able to give the results of this measure, the importance of which can hardly be overrated in face of the continued spread of the disease, and the fact that although my recommendations with regard to the treatment of infected villages were sanctioned by the Chief Commissioner of Assam, but little progress has yet been made in carrying them out.

Dr. Lavertine, of the Nowgong District, writes that as yet he has only been able to carry out my recommendation that all new coolies should be placed in new lines and not in old infected ones. The result is that "there has been no case of kala-azar amongst 264 new coolies who have been up for eight months or over," and that although "we are still getting new cases amongst the coolies in old lines." He is now segregating every case of the disease and all their relations, and destroying the old houses that they occupied. This is the measure that I advised in the case of lines which were only