ments, to adopt the necessary measures for safety; the workmen also may be forced by fines to follow the rules.

As regards the participation of the insured workmen in the organisation of the trade associations, they are neither members of the associations nor have they to bear any of the corporate burdens. They have, however, to take on themselves a portion of the aggregated liabilities caused by accidents, in so far as, together with the employers, they contribute to the associations for insurance against sickness, to which, as already stated, for practical reasons, the care of patients during the first thirteen weeks of the illness is left.

Accordingly the law permits representatives of the working men (chosen by the directing boards of the associations for insurance against sickness) to take part in the police investigation of accident cases, and in the discussions of preventive regulations, as well as in the proceedings of the arbitration courts and of the Reichs-Versicherungsamt; on all these occasions the workmen enjoy the same rights as the representatives of the employers.

The Reichs-Versicherungsamt (Imperial Insurance Department) is the supreme court for all that has reference to organisation, administration, and judicature. It is composed of permanent members—a President appointed for life by the Emperor on recommendation of the Bundesrath, and several higher officers similarly appointed; and of temporary members—namely, four delegates of the Bundesrath, and representatives of the employers and employed in equal numbers. Two judiciary officers are added to decide the more important cases, such as appeals to the Reichs-Versicherungsamt and the settlements or adjustments of claims in the case of changes in the composition of trade associations. For some of the federal States, special State insurance offices have been established.

INSURANCE AGAINST INVALIDITY AND OLD AGE.

The money to pay the invalidity and old age pensions is furnished jointly by the empire, the employers, and the employed. The empire contributes to each annuity the fixed amount of 50 marks per annum, and pays the contributions of the workmen while serving in the army or navy. It defrays the expenses also of the Reichs-Versicherungsamt, and effects gratuitously, as in the case of the accident insurance, the payment of pensions through the post-offices. All other expenses are borne in equal shares by the insured and their employers, and are raised by current contributions.

The carrying out of the invalidity and old age insurance is entrusted, under State guarantee, to special insurance institutions, whose districts coincide with the province or State divisions.

The pension for old age is granted, without proof of disability, to all who have completed their 70th year. The pension for invalidity is granted, irrespective of age, to every insured person who is permanently disabled (that is, no longer able to earn even one-third of his average wage), and also to persons, not permanently disabled, but who for an entire year have been unfit for work, during the remaining period of their disability.

REMARKS.

It can hardly be doubted that a general system of insurance of the labouring classes, rendered compulsory by law (such as the German system) must exercise a beneficial effect on the mass of the poor people, and through them on the whole nation. By such a system every labourer is assured of a certain amount of support in case of illness, accident, or infirmity. The insurance subscriptions (paid partly by the empire, partly by the workmen themselves, and partly by their employers) are reduced to a minimum owing to the immense number of individuals thus clubbed together. Some, indeed, may object that a State institution of this kind is "too paternal" or rather "too socialistic," but such terms mean little in themselves. A system which gives the poor workman a certain just sense of security, and, when sick, the feeling that he has contributed something to his medical treatment, must deserve attention. Moreover, it doubtless reduces in number those who having lost employment by illness of various kinds become paupers.

An insurance system of this kind presents special points of interest in regard to medicine and the medical profession. The mutual obligation of the different parties concerned in

such a system must help towards the proper carrying out of sanitary regulations. It becomes at once the duty of an employer, not only towards his workmen but towards other employers, to see that his workmen do their work under the most hygienic conditions possible. The workmen, moreover, are bound to carry out directions as to personal hygiene, etc., and when ill or injured must submit to be treated by the approved methods, and cannot so easily go wandering about from one hospital to another, as they sometimes do in England.¹

It is obvious that the collection of statistics of medical importance must be greatly furthered by an insurance system of this kind. By the necessary registration of cases knowledge must be gained as to the exact relative frequency of various illnesses and injuries amongst workmen employed in different kinds of work, and living in different places.

The statistics must also help in deciding which methods of treatment, at least which practical methods, give the best results when employed on a large scale. By the aid of the insurance associations more hospitals and sanatoria for treatment of the consumptive poor could be erected, both in suitable parts of the country, somewhat after the model of the new sanatorium for poor consumptives at Rupertsheim in the Taunus, and in towns, like the hospitals for consumption at London, Frankfurt, etc. In fact, not only sanatoria for consumption, but sanatoria for various classes of convalescents might be profitably established by such an insurance system. Similarly, institutions for Swedish gymnastics and massage might be instituted (or, as in some German towns, private ones might be hired by contract during certain hours of the day) for the use of working men, considered by the insurance doctors likely to be benefited (for example, after injuries to joints, etc.) by such means.

These are some of the advantages which might accrue from such a general system of working men's insurance. On the other hand, it must be acknowledged that medical men are not likely to be well remunerated for their most important share in the work. Medical men would naturally, as in Germany, be found to do the work for very little, partly to have a share in the great undertaking, and partly, doubtless, for the sake of the experience to be gained. After all, however, the medical clubs in England are probably just as bad for the doctor's pockets, do less good to the working classes, and are more liable to be abused by those who could quite well pay the ordinary medical fees.

REFERENCES.

¹ New edition, published by A. Asher and Co., Berlin and London, 1896. See also *Die Arbeiterversicherung in den Europäischen Staaten* (Leipzig, 1895), by Dr. T. Bödiker, President of the Reichs-Versicherungsamt; and *Les Assurances Ouvrières en Allemagne* (Paris, 1895), by Maurice Block. ² I do not mean that poor patients should necessarily be prevented from changing hospitals when they really fancy themselves badly treated; it would be sufficient if those who now change hospitals for some trivial question of convenience, should have a practical inducement not to do so. Knowledge as to the sequelæ of disease, ultimate results of operations (such as radical cure of hernia, etc.), recurrence of tumours, etc., would be thus facilitated. Certain classes of patients would probably continue to wander, for instance, many neurasthenics, including the *malades imaginaires* of the poor.

THREE CASES OF RUPTURED GASTRIC ULCER TREATED BY LAPAROTOMY, SUTURE, AND WASHING OUT OF THE PERITONEUM.¹

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THE history of the three following cases that have occurred in my practice will, I hope, prove of interest to the profession.

CASE I has been already fully recorded.² The more prominent points were as follows: The rupture took place on December 7th, 1893. The operation was performed five hours after the first onset of symptoms. The details as to suturing the ulcer and washing out of the peritoneum were very similar to those of Cases II and III, about to be related. The patient recovered completely in a month, and has ever since been, and is at the present time, quite free from all symptoms.

CASE II. Miss E. P., aged 21, had been under treatment for dyspepsia the two previous winters, being always better in the summer time. Her sister

¹ Read before the East Anglian Branch of the British Medical Association.

² *Medico-Chirurgical Transactions*, vol. lxxvii, and *BRITISH MEDICAL JOURNAL*, March 17th, 1894, p. 576.

died from ruptured gastric ulcer in twenty hours from the first onset of symptoms. For three days preceding her rupture I had seen her and diagnosed gastric ulcer, her chief symptoms being pain after taking food, relieved by vomiting, and pain on pressure over the cardiac end of the stomach.

Rupture occurred suddenly on October 24th, 1895, and I saw her two hours after. Her condition then was as follows: Her face, usually rosy, was quite pale; features pinched; pulse 90, feeble, and feeling empty. She was lying on her back in bed, hardly daring to move, cold and collapsed. The abdominal muscles were perfectly rigid. On percussion the whole abdomen was hyper-resonant, the liver dullness being absent. Pain was caused by deep pressure on any part of the abdomen. She told me that when the symptoms commenced she was sitting still in a chair, and lifted her arms for some purpose, when suddenly she felt a violent pain in the abdomen, which made her sink down into the chair and cry out, "I am dying!" She screamed with pain for several minutes, then tried to vomit, but could not do so. The pain commenced in the left hypochondriac region, and rapidly spread all over the abdomen.

The only food which had been taken into the stomach was some beef tea some two hours before. I decided at once that the case was one of ruptured gastric ulcer and advised abdominal section without delay. Dr. Barton, who saw her with me, agreed in the diagnosis and treatment proposed. Mr. D. Day gave ether, and the operation was commenced four and a half hours after the first onset of symptoms.

The patient was very cold, and was wrapped in hot blankets upon the operating table. An incision about 3½ ins. long was made 1 in. to the left of the middle line, commencing at the cartilages of the ribs and extending down towards the umbilicus. The reason for making it to the left of the middle line was to allow the entire organ to be more easily withdrawn from the abdomen.

Directly the peritoneum was opened the contents of the stomach began to well up into the wound. Beef-tea and a few curds of milk could be recognised. The stomach was immediately found and drawn completely out of the wound. The rupture was a round punched-out hole, about ½ in. in diameter, situated on the anterior surface of the cardiac end about 1 in. above the attachment of the transverse gastro-colic omentum. I tried to wash out the stomach, but this failing I contented myself with squeezing out its contents through the ulcer.

The perforation was then closed. A curved needle threaded with catgut was passed so as to take up only the peritoneal and muscular coats in the form of Lembert's sutures in such a manner as to cover in the ulcer. A second row of sutures was now put in so as to bring into apposition two surfaces, each of which was 1 in. in breadth, and extended in both directions 1½ in. beyond the perforation.

The stomach was then replaced and the washing out of the peritoneum with boiled water commenced, cooled to a temperature of 105° F. With the usual siphon irrigator and two glass tubes passed in different directions, a stream of water was constantly kept running in through the irrigator and out at the glass tubes. In this way every possible corner was reached, and the washing continued until the water returned quite clear from each point before moving the tubes to another. About 20 pints of water were thus used. A drainage tube was left in and the wound closed. The operation lasted forty-five minutes. Shock was severe, and was treated with warmth and brandy enemata. As in the first case, the patient on coming round from the anæsthetic expressed herself as being free from pain, and during the night slept a good deal.

No food was given by the mouth for forty-eight hours, after which the administration of liquids caused no symptoms. Her convalescence was retarded by the formation of an abscess in the left pleural cavity, which was opened and drained from the back. However, at the present time she is strong and well and can walk several miles, and has none of her old symptoms.

CASE III, a servant girl, aged 22, who was somewhat anæmic and had had dyspepsia for some time, was suddenly seized with violent pain in the abdomen whilst at her work; was sick once, and afterwards retched and tried several times to vomit but without success.

She was seen by Mr. Shepherd, of North Walsham, and by Mr. Hugh Taylor, of Wroxham; the diagnosis of ruptured gastric ulcer was made. When I saw her, her condition was as follows: She lay sunk down in bed, her eyes sunken, with dark rims round them. Respiration 50 per minute, pulse 150. The knees were drawn up, the abdomen distended and tympanitic all over, the liver dullness absent; there was tenderness on pressure all over. She was perfectly sensible, and told me the pain began suddenly at a spot to which she pointed, just to the left of the xiphoid cartilage. The abdominal muscles were not at that time rigid; in all probability relaxation had come on as the result of exhaustion.

Operation was at once agreed to. It was now just twenty-four hours since the commencement of symptoms. Ether was given by Mr. Shepherd, and with the assistance of Mr. Hugh Taylor I opened the abdomen above the umbilicus, just to the left of the middle line, the incision being placed in the same position as in the other two cases. When the peritoneum was opened a rush of gas followed, and next a continual welling up of bile-stained fluid mixed with curds of milk. The whole stomach was drawn out of the wound and a perforation found on its anterior surface, close up to the cardiac orifice, so high up that it was difficult to draw the stomach down far enough to make the perforation appear in the wound.

With a curved needle threaded with catgut Lembert's sutures were introduced, first a row close to the perforation, then a second row, so that, when tied, about two inches of the peritoneal surface of the stomach were in apposition, the perforation being at the bottom. Next, the peritoneal cavity was washed out thoroughly in the usual manner, thirty pints of hot water being used, and a glass tube, as in the other cases, was passed in by the side of the irrigator to assist in the return of the water, and only discontinued when clean water returned from every point. The operation lasted an hour, and the patient's condition at the end was one of great exhaustion. Yet she awoke from the anæsthetic apparently quite sensible, and not suffering mentally from shock, though the bodily shock was very severe. The pulse was hardly perceptible, the respiration rapid, and she was very cold. She lived only a few hours after.

The duration of life after perforation of the stomach may be estimated at twenty-four hours; hence the importance of

early and distinct diagnosis cannot be exaggerated. The shock following perforation is so severe and its effects can be observed to increase with such rapidity that it is apparent that the chances of success are diminishing in direct proportion to the length of time that is allowed to elapse between the occurrence of the injury and its repair by surgical means. It has been before observed, though I think not explained, that injuries of the upper part of the abdomen produce greater shock than those of the lower part. Mr. Dunn refers to this. I think it probable that this is owing to their close proximity to the solar plexus and its large semi-lunar ganglia, as I observed that in the second case here related the manipulation of the irrigating tube in this neighbourhood was sufficient to stop respiration on two separate occasions.

One other point I would mention. A frequent cause of death in the cases which survive the first injury is inflammation of the lung or pleura. It appears that septic materials rapidly pass through the diaphragm from below; to prevent this the thorough cleansing of the peritoneum at the time of operation seems the only remedy.

It is difficult to explain why the two cases that recovered have ever since been quite free from all symptoms of gastric ulcer.

A CASE OF ACUTE INTESTINAL OBSTRUCTION FROM IMPACTED GALL STONE: RECOVERY.

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A VERY stout woman, aged 63, was seized (February 7th, 1896) with well-marked biliary colic. She had suffered some months previously from at least two similar seizures, and was a chronic dyspeptic, with great predilection for various patent medicines.

Bilious vomiting was very severe, and the excruciating pain was with difficulty kept in check by hypodermic injections of morphine. On the fourth day of the disease stercoraceous vomiting, general abdominal pain, distension, quick thready pulse, and other signs of acute intestinal obstruction set in.

At a consultation with Dr. Caldwell Stephen, of South Kensington, a diagnosis of impacted gall stone was made and an unfavourable prognosis given.

Treatment consisted chiefly of copious and frequently-repeated enemata of tepid water, alternating with nutrient injections, and hypodermic injections of morphine and atropine (gr. ¼ and gr. ⅙) to allay the excessive pain, a little ice only being allowed by the mouth for thirst. The patient became rapidly worse. The pulse was 120 to 140, wiry and occasionally intermittent; temperature 99° F. The tongue was dry and glazed; the abdomen tympanitic and distended, especially in the cæcal region. Nothing was discoverable on palpation beyond slight fulness over the sigmoid flexure, and nothing on examination *per rectum*.

Four days after the onset of obstructive symptoms (eighth day of disease) there was some amelioration, vomiting diminishing, and the general strength being somewhat better. There was, however, distressing hiccough and continued severe pain, and during the next few days she became progressively weaker, and on the sixteenth day of the illness was apparently dying. The pulse was 135, almost imperceptible; respiration was gasping, the extremities clammy, and mucus rattling in the throat. A hypodermic injection of strychnine sulphate was given (gr. ⅓), and she rallied in a remarkable manner, swallowed a little peptonised milk and retained it.

For the next four days the condition was unchanged, but on the twenty-first day she was again *in extremis*. She, however, rallied again, and, although fearfully emaciated and almost pulseless, her vitality continued to be marvellous. On the twenty-fifth day of the illness the enemata became slightly mixed with faecal matter, and three days later the obstruction finally broke down.

The general condition now improved up to a certain point, but for the next four weeks the weakness was so extreme, owing to obstinate refusal to take nourishment and the in-