arsenious acid solution contained 1 per cent. of the oxide, As_2O_3 , the arsenite and arseniate of soda solutions contained each 1 per cent. of the element arsenic. From the formula As_2O_3 is easily calculated the quantity of the solution of arsenious acid which must be taken in order to contain as much of the element arsenic as given quantities of the arsenite and arseniate solutions. The strengths of all three would have been made equivalent to 1 per cent. of the element, but for the insolubility of arsenious anhydride.

Of these solutions, definite quantities, containing known and therefore comparable quantities of the element arsenic, were injected under the skin of the back of frogs. The common English frog (*Rana temporaria*) was taken; and care was observed to select, for the parallel series of experiments, specimens as nearly as possible of the same size and condition. Each experiment consisted in the injection of three frogs with the above arsenic preparations; for each frog, one of the arsenic compounds. The three injections were performed at the same hour, one after the other, as speedily as possible. Each frog was then placed under a separate bell-jar, and observed. The observations extended over two days, as a rule; sometimes over three; they were taken morning, noon, and evening. The experiments were performed during the months of May and June 1882; a few during August of the same year.

Thus, comparable quantities of the element arsenic, in three different states of combination, were administered to frogs chosen as nearly alike as possible. The results obtained are given in the form of tables (pp. 1138-39). The headings chosen for the columns will not need explanation, except perhaps that described as "Death of the Central Nervous System". The evidence of this death is, that the frog neither moves spontaneously nor answers to any stimulus by volitional movements. The absence of these latter in response to stimulation has been assumed to correspond with abolition of sensation. This absence of the more complex co-ordinated movements was at times to be noted whilst the less complex co-ordinated movements constituting reflex action still persisted; but, as a rule, reflex action outlasted but a very short time the abolition of the more complex movements. Hence, practically, "Death of the Central Nervous System" corresponded to:

1. Absence of spontaneous movement;
2. Absence of volitional movement on stimulation;
3. Absence of reflex action.

Though these three occurred so nearly together as practically to constitute but one group, the above is the order of their disappearance. It may be further mentioned that, together with the above noted, the automatic centres of respiration and circulation ceased to perform their functions. It is clear that, with a peripheral apparatus, nerves, and muscles, still efficient, the above indicates extinction of the functions of the central nervous apparatus of the brain and spinal cord.

The subsequent death of this peripheral apparatus is given in the next column, headed "Death of Muscular Tissue". The nerves are left out, because their condition is rather less readily examined, and hence not so well adapted for comparative examination. The sciatic nerves were, however, tested in nearly every case; and it was established that, at the time of "death of the central nervous system", as above evidenced, the nerve-trunks still conducted well; and, further, that death of the nerve-trunk preceded, as a rule, by a considerable period, the death of the muscular tissue itself. Hence, then, the two test-tissues chosen are:

1. That of the central nervous system;
2. That of the muscles.

In the column headed "Remarks," is given the peculiar action on the skin in the shape of desquamation, which may vary from a slight separation of the epithelium to a condition in which this may be picked up or scraped off in large flakes. This condition has been fully described in the *Journal of Physiology*, vol. i. In this same column, anything noteworthy at the time is recorded.

[To be continued.]

SOUTH MEATH AND DROGHEDA MEDICAL ASSOCIATION.—The usual annual meeting of this society was held on November 24th, in the Board-room of the County Infirmary, kindly lent by Dr. MacDonnell. Several papers were read, and matters discussed of interest in connection with the profession; after which the members dined together at the Queen's Arms Hotel. The chair was occupied by Dr. Gartlan, senior member, who presided with his usual tact and ability. A number of toasts were given and happily responded to by the several members, many of whom also contributed much to a very enjoyable and intellectual evening by capital singing. Owing to pressing duties and the unfavourable weather, a number were debarred from coming, who had signified their intention to be present.

NOTE ON MESENTERIC CYSTS AND TUMOURS.

By T. SPENCER WELLS,

President of the Royal College of Surgeons; Surgeon to the Queen's Household.

UP to the date of the publication of my last work on *Ovarian and Uterine Tumours*, I had not met with any cases of mesenteric cysts or tumours. In the chapter on diagnosis, I had spoken of collections of fluid in the peritoneal cavity more or less completely encysted by adhesions—of hydatid cysts—of peritoneal cancer—and of fibro-plastic and fatty tumours of the peritoneum, of the omentum, and of the sub-peritoneal cellular tissue. But I had not then read Mr. Doran's interesting case of cyst of the great omentum, published in the *Obstetrical Transactions* (vol. 23, page 165); nor had I ever seen a solid tumour of the mesentery. During the past summer, however, I have seen one case closely resembling Mr. Doran's, with Dr. Duke of St. Leonard's, but which appeared to be rather mesenteric than omental. I did not attempt to remove the cyst, only removing the fluid contents. The lady died a few weeks afterwards; and, as no examination of the body was permitted, I cannot say more of the case. About the same time, I removed a large solid mesenteric tumour from a married lady, forty years of age, a patient of Mr. Arthur Jackson of Sheffield. She had been married eighteen years, but had no children, though she had a premature labour some months after marriage. Two or three early abortions followed, and no further pregnancy. She was in good health until about four years ago, when pain in the iliac regions and slight abdominal enlargement was noticed; but no tumour was discovered until early in 1881. After that, increase was very manifest, with some apparent diminution after each menstrual period. Various opinions were given as to the nature of the tumour—some believing it to be ovarian, others uterine. I frankly confessed my own inability to give a very positive opinion as to its nature or connections; but expressed a very confident belief that I could remove it without any unusual difficulty or danger. It was quite solid, central in the abdomen, freely movable, about the size of an adult head, and imparting transmitted rather than associated movements to a uterus somewhat enlarged. I removed the tumour on June 20th, 1882, at Sheffield. Mr. Shaw kept the patient in a state of perfect anaesthesia with bichloride of methylene, and I was ably assisted by Mr. Arthur Jackson, Mr. Favell, and Dr. Redpath. Phenolised spray and all the usual antiseptic precautions and dressings were carefully employed. The tumour was solid, and its origin was clearly in the cellular tissue, at the root of the mesentery proper, near the lumbar vertebrae. The ascending colon was closely connected with the tumour in front, and to the right. All its blood-supply was derived from the mesenteric vessels. Those which were divided were secured with carbolic silk, the ends of all the ligatures cut off short, and returned. The uterus and both ovaries were healthy. No drainage was employed, and the wound was closed exactly as after ovariectomy. There was some sickness during the first three days; but recovery may be said to have followed without fever. The highest temperature was on the third day, but was only 100°. The patient left her bed on July 12th, and I have heard of her lately as being in good health.

The tumour was sent to the Sheffield Pathological Society for examination and report. I have not yet received the report; but I hope it will be forwarded, as the removal of a solid mesenteric tumour may still be regarded as a surgical curiosity.

ON FREE REMOVAL OF MAMMARY CANCER, WITH EXTIRPATION OF THE AXILLARY GLANDS

AS A NECESSARY ACCOMPANIMENT.*

By W. MITCHELL BANKS, M.D., F.R.C.S.,

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I HAPPEN to live in a district where cancer is common. Liverpool is in an area which the Registrar-General's statistics show to be clearly of a malignant habit. The reason of this I cannot say; but it is a fact, and possibly thus it is that my attention has been for some time drawn to the subject. In 1877, I published a little article in the *Liverpool and Manchester Medical and Surgical Reports*, based upon a paper read before a meeting of the Lancashire and Cheshire Branch of the Association. In it I asserted that surgeons did not remove cancers of the breast. Five years later, before the whole Association, I reassert

* Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Worcester, August 1882.