

INDIA

The Health of Bombay

The Province of Bombay has a population of close upon twenty millions and a birth rate of 39 per 1,000, which is nearly three times the birth rate of Manchester. The infant mortality rate (152.7 per 1,000 births) in 1939 was the lowest ever recorded in the province. The increase of population is regarded with some disquiet. As the annual report of the Director of Public Health points out, at one time a high birth rate was taken as an index of the prosperity of the country. Evidently, an unhealthy population cannot be expected to have a high birth rate, but at the same time it is not impossible for a prosperous and healthy country to have a comparatively low one. A reasonably low birth rate is far to be preferred, says the Director, to the excessive one of over 50 per 1,000 which is recorded in several districts of the province. The death rate in Bombay (25 per 1,000) is going down, and the decrease applies to almost every one of the common causes of mortality. It is pointed out that the total death rate in recent years has been scarcely affected by any decrease or increase in deaths due to epidemic diseases. It depends mainly upon constitutional rather than accidental causes. The latter have in recent years been brought under control to a great extent, so that it is now unusual for an epidemic to run like wildfire and cause enormous waste of life as formerly. The only diseases for which an increase in the death rate is recorded are plague (a slight increase) and small-pox (a considerable increase, from 0.24 per 1,000 in 1938 to 0.38 in 1939). Although there was a decrease in the number of deaths from tuberculosis, 23,195 persons died from the disease in the year 1939, and the total deaths due to all epidemic diseases do not amount even to one-half of the deaths caused by tuberculosis. It would therefore be unwise to assume that the spread of tuberculosis has been checked, or that the factors causing constitutional diseases—low standard of living being the most prominent—have been removed. The cholera epidemic of 1939 was of a mild nature, and the number of deaths was the lowest since 1932. The annual report bears encouraging witness to the growth of urban and rural sanitation in Bombay and the activity of many health movements, especially maternity and child welfare and school hygiene.

Reports of Societies

WAR INJURIES OF THE SPINE

A meeting of the Section of Surgery of the Royal Society of Medicine was held on March 5, Mr. J. B. HUNTER presiding, at which a discussion took place on "War Injuries of the Spine."

Mr. JULIAN TAYLOR, after some reference to the historical aspects of the subject and his own experiences during the last war, said that the injuries fell into two classes, the larger being what might be called the civil group, in which motor cars or falling masonry were the usual causes; and the smaller, the group of injuries caused by projectiles. The damage to the cord and the effect on the functions of the victim were similar in both classes, and in all cord injuries and in both groups there was a high proportion of neurologically complete interruptions. Interruption of conductivity of the cord might be due to one or more factors. Thus there might be complete severance, physiological interruption due to crushing without section, or what was called spinal concussion or shock. These were instantaneous events, but at the site of crushing there usually occurred some bleeding later, which tended to spread up and down the substance of the cord in more or less cylindrical form, giving place still later to cavities containing clear fluid.

The effect on the conductivity of the cord of all these agencies, except severance, might be transient; part of the immediate effects might be due to temporarily acting conditions, part to permanent. Theoretically, by adding a frac-

tion of the temporary to a fraction of the permanent a complete interruption might be made, and thus it would not be possible to say what chance there was of improvement of a temporarily complete paraplegia. Unfortunately there was no such ground for uncertainty, for it was the experience of Sargent and of Trotter that with early complete paraplegia no return of function was to be seen. The speaker himself had never found evidence of recovery in such cases.

Interruptions of the Spinal Cord

Haemorrhage into the substance of the cord was capable of producing increasing degrees of interruption after an accident. The increase was due at first to continued effusion of blood, and later to the reaction to its presence in the tissues of the cord. A partial lesion might be recognized clinically by persistence below its site of skin sensibility or of motor power or of reflex activity. There was such a thing as the academically incomplete lesion—one which showed during its later history that it was not quite complete, but which gave back no useful function, although some slight return of sensibility might be seen.

Although partial lesions revealed their nature at once or in an early stage, he did not wish to imply that they proceeded to complete recovery either invariably or rapidly. But the fact that a lesion was a partial one indicated that the violence which reached the cord was slight, and thus it might be hoped that useful recovery would occur, although a year or longer might elapse before recovery was established. These partial lesions were obviously the only ones which, from the point of view of the cord, were worth operative or manipulative treatment with the object of relieving pressure. Experience of the present war had suggested that partial lesions were of great rarity in both the groups he had named. Dr. Gordon Holmes in his Goulstonian Lectures in 1915 mentioned 300 cases in only forty-five of which were incomplete lesions found. In less than one-sixth of the projectile cases the question of surgical relief of pressure might be considered, and in the majority even of these it was likely ultimately to be rejected.

Injuries caused by Projectiles

In an incomplete lesion the presence of metallic or bony fragments might cause persistent pressure on the cord, and these should be removed. It was rare for metallic fragments to be held up in the spinal canal, for a projectile which had the energy necessary to penetrate the canal or fracture its walls had usually enough left to carry it out again into other tissues. Another reason for removing metallic fragments, irrespective of the position of the foreign body, was the prevention of infection. As an infected track must pass by the cord or meninges, an infected wound was an obvious source of meningitis. When entrance wounds were suppurating freely, as was usually the case, the rule should be to bring the wound to as clean a state as possible by a superficial drainage operation before removing the foreign body. Meningitis in penetrating wounds of the central nervous system was extremely common in neglected cases, but mortality from it was low. In discussing the treatment of the infected focus Mr. Taylor mentioned the new bactericidal drugs, but stressed his view that these were adjuvants to surgical treatment, though he agreed that sulphapyridine had in certain cases cleared up staphylococcal meningitis when no other treatment, not even by lumbar puncture, had been employed.

In at least five cases out of six, transport, nursing, and management of the bladder were the beginning and end of treatment. The primary needs of the patient with the anaesthetic back were distributed pressure, continual changing of the sites of pressure over bony prominences, and cleanliness of the skin. Whereas water beds and sorbo-rubber mattresses permitted all of these, plaster beds invariably gave rise to bedsores.

Management of the Bladder

Finally, Mr. Julian Taylor dealt with the management of the bladder, the most important duty of the medical attendant. When there was retention of urine, which almost

invariably occurred, there were three methods available: regular catheterization, the tied-in catheter, and suprapubic drainage. Each had its disadvantages. For the patient who might recover his vesical function he recommended regular catheterization, and the same procedure for the patient likely to develop automatic micturition. For the patient who was not going to improve or to develop automatic micturition—for example, one suffering from a cauda equina lesion—he recommended suprapubic cystotomy with lavage of the bladder at low pressure. For the patient who had to travel a long distance in an ambulance a catheter tied in and scrupulously arranged was probably the least harmful expedient.

Types of Fractures

Mr. R. WATSON JONES divided injuries of the spine into three groups: compression fractures of the vertebral bodies, avulsion fractures of the transverse and spinous processes, and penetrating wounds of the spine. Investigations he had pursued in recent weeks showed that the surgeons of the Royal Navy, of the Royal Air Force, and of the Emergency Medical Service were faced to-day, exactly as in days of peace, with a very large number of uncomplicated fractures and a very small number of spinal cord injuries. He mentioned a form of fracture almost unknown in this country until twelve months ago. It was called "shoveller's fracture," in which the spinous process was torn off the vertebra by violent contraction of the rhomboid muscles at the moment that a labourer drove his shovel into wet clay or flung the laden shovel into the air. Its recent frequency was among those engaged in excavating shelters, digging trenches, or clearing debris.

Of vertebral body fractures the simple wedge compression was by far the most common. It was likely to be sustained by the dock labourer who fell into the hold of a ship, the window cleaner who fell from his ladder, or the steel erector who fell from scaffolding. In another type of fracture in which the vertebral body was comminuted the injury was usually due to the fall of a weight across the shoulders, as in the case of a miner trapped by a fall of roof. Fracture-dislocation, most often seen in car accidents, was, like comminution, due to acute angulation, but with a traversing momentum which carried the upper segment of the spine forwards so that the spinal cord was often injured. In the Royal Navy the most frequent war injury of the spine was a simple wedge compression of one or more lumbar vertebrae, with or without a fracture of the os calcis. It was often caused by jumping from the deck of a torpedoed ship or by the explosion of a mine below the vessel. In the treatment of these lumbar fractures two points were important: (1) the compression could be completely reduced by hyperextension of the spine by the two-table method, but the limit of hyperextension must be reached; (2) the fully extended position must be maintained by an adequate plaster jacket for not less than three months.

Fractures sustained by Airmen

In the Royal Air Force fractures of the lumbar region might again be sustained as a result of parachute or crash landings, but the commonest fracture was one in the upper half of the dorsal region of the spine. The reason for the localization lay in the fact that the pilot was partly fixed to the back of his seat by a special harness which prevented forward movement of the shoulders, so that if a fighter aircraft crashed the pilot could not double up in the ordinary way at lumbo-dorsal level, but the momentum still tended to carry his head forward, so that the site of angulation of the spine was the upper dorsal region.

The reduction of these high dorsal fractures was very difficult, but for that very reason perfect replacement was relatively unimportant. As the injured vertebra lay in the middle of one of the arms of leverage it was in a relatively immobile segment of the spine, and in such cases perfect function was compatible with definite compression of the vertebra. In treatment the spine was extended as much as possible, and a wing of plaster was added across the front of each shoulder to maintain extension of the upper dorsal region, but not to include the cervical region and head.

Immediately after reduction of the fracture hyperextension exercise was undertaken. With such treatment it had been unnecessary to immobilize the spine for more than two months.

Prognosis in the lumbar region was relatively good. More than half the cases of fracture-dislocation at this level with paraplegia made a complete recovery. In the dorsal region, on the other hand, the spinal cord almost completely filled the spinal canal, and recovery from paraplegia was not observed in more than 15 or 20% of cases.

Spinal Injuries in Air-raid Casualties

Mr. Watson Jones went on to say that his inquiries showed that surgeons in the Emergency Medical Service who were treating air-raid casualties had to deal with only a small number of spinal injuries. No doubt the mass of masonry which fell on air-raid victims if sufficient to fracture the spine was also sufficient to kill. The few cases that had occurred had been in air-raid shelters, the roof of which had crashed down on to the shoulders of those within. The type of injury sustained was a comminuted fracture or fracture-dislocation of the cervical region.

In the treatment of cervical fracture-dislocations he emphasized the value of skeletal traction from the skull. This was the safest method of reduction and, moreover, the best method of preventing redisplacement. Skull traction relieved pressure on the cervical cord because it not only reduced the bone displacement but by maintaining a distracting force on the intervertebral spaces it encouraged replacement of retracted intervertebral disk material.

All the injuries so far discussed were the flexion variety of fracture or fracture-dislocation, and in conclusion Mr. Watson Jones mentioned the rarer hyperextension injuries, as instanced in a sailor who fell on to the deck of a destroyer and sustained violent hyperextension of the spine, with a traumatic spondylolisthesis, so that all the lumbar vertebrae were dislocated forwards on the sacrum. That particular case when he saw it was several months old and it was impossible to attempt reduction, but he believed that the method of reduction he had described for congenital spondylolisthesis would have been effective if applied at an early date. In this method the patient lay face upwards with head and shoulders supported on a table, the hips flexed to the right angle, and vertical traction was applied to the thighs so that the lumbar curve was flattened and the pelvis pulled forwards. Even in congenital spondylolisthesis improvement of position was possible, and in a traumatic case perfect reduction should be obtained.

Technique of the Plaster Jacket

Mr. K. I. NISSEN said that the experience at the Orthopaedic Centre, where in most of the cases received the injuries were at least a fortnight old, was that every plaster jacket had to be removed either immediately or within the first week, on account of faulty technique in its application. In some cases there was incomplete hyperextension and in others incomplete or faulty padding, while a number of plasters were rendered ineffective by excessive trimming above the pubic region and also low down on the sternum. For obtaining hyperextension he had found of great service a sling made of stout canvas about 4 in. wide with padding of 1/4-in. felt, but with the padding completely removed over the front part of the sternum and replaced by some soft materials, such as chamois leather. The sling was used to take the strain off the arms, multiple injuries of which hindered the application of the plaster jacket. He stressed the need for carrying out suprapubic drainage high rather than low in the abdomen. If such drainage were attempted it should be, particularly in a cauda equina lesion, 1½ in. above the pubic crest. He added that the amount of reduction obtained in the cases of spinal fracture which had come to the centre had been most disappointing. If a week had elapsed after the injury, every day diminished the chance of getting a satisfactory reduction, and after two or three weeks the possibility had practically disappeared. The plaster jacket then served the purpose of splintage and not its primary purpose of facilitating complete reduction.

CASE OF ADRENO-CORTICAL SYNDROME

At the last meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland, with the president, Dr. R. H. MICKS, in the chair, Dr. KEVIN MALLEY gave an account of a patient with adreno-cortical syndrome.

The patient was a girl of 14 with a family history of virilism on the maternal side. A sister aged 11 was believed to be suffering from the same complaint. Abnormality was first noticed at the age of 9, when hair appeared on the pubes and both axillae; at the same time she grew fast and showed excessive muscular development. Three years later a "growth" appeared in the vagina. She had not menstruated. When she was 13 soft downy hair appeared on her upper lip and "beard" region. On examination she was found to be 5½ in. under normal height and 5 lb. under normal weight for her age and sex. She showed masculine configuration and voice, and had acne vulgaris on the hairy regions round her mouth. She had dense hair on both legs, pubic hair reaching from the vagina to the umbilicus, and marked muscular over-development. The clitoris was enlarged and resembled a penis; the labia majora were well developed and the labia minora poorly formed. The uterus was small. The chest and sella turcica appeared normal to x-ray examination, and the fundi of her eyes and the basal metabolic rate were also normal. She had slight polycythaemia, diminished sugar tolerance, and slight reduction of sodium and increase of potassium in the blood. Blood calcium, phosphorus, and cholesterol were normal. Dr. Bradshaw had reported an increase of 17-ketosteroids and remarkable excess of excretion of sodium pregnandiol. At laparotomy (by Mr. P. J. Smyth) both adrenals were found enlarged.

Dr. T. G. BRADSHAW described his investigations on twenty-four-hour specimens of urine over a period of a month: excretion of 17-ketosteroids varied from 50 to 160 mg. per twenty-four hours, with an average of 58 mg.; the sodium pregnandiol glycuronide output varied from 80 to 297 mg. per twenty-four hours with an average of 142 mg. The normal figure would be 6.75 mg. for 17-ketosteroid excretion and 0 to 10 mg. of sodium pregnandiol glycuronide in the second half of the menstrual cycle. The 17-ketosteroid excretion in this patient was consistent with that found in cases of adrenal tumour. Dr. G. C. DOCKERAY mentioned arrhenoblastoma and hypernephroma of the ovary as points in the differential diagnosis. Dr. OLIVER FITZGERALD asked if this case demonstrated deficiency of the adrenal cortex and its hormone. Dr. D. K. O'DONOVAN said that in actual practice the diagnosis of this case was extremely difficult. He thought the girl was very likely to go into an acute Addisonian crisis if not operated on, but the greatest possible care must be taken at operation. There was definite evidence that the cortical hormone was of two types. Dr. W. R. F. COLLIS thought an operation would be very dangerous, but it was worth the patient's while to take a pretty big risk. Perhaps deep x-ray therapy could be applied to the left suprarenal. The sodium and potassium content might give a lead in the right direction. Dr. O'C. DONELAN said it was very rare to find this type of acne in a girl so young; acne did not usually begin until about six months before menstruation. Large doses of follicular hormone had given good results in some cases of acne. Mr. J. C. FLOOD said he hoped the adrenal gland would be investigated by the pathologists if it were removed. The results of operation had not been too bad in Broster's series. In most of these cases the sella turcica was smaller than normal.

Dr. MALLEY, in reply, said he would put the patient on a test diet, deficient in sodium. Operation would only prevent a progression of the syndrome. It was rather satisfactory that both glands were enlarged, as usually an adenoma was unilateral.

At a meeting of the Socialist Medical Association of Great Britain, held in London on February 22, Dr. STARK-MURRAY gave an address on "An Approach to Socialized Medicine." He emphasized the fact that the outline he now presented was the result of years of patient work on the part of S.M.A. members and had not been born overnight. A great change had taken place in the attitude of the profession, and there was a demand

for a new organization of medicine, especially from the public. Nationalization did not necessarily mean socialism, as events in Europe had shown. The socialization of medicine might well anticipate that of the whole State. He stressed the importance of nutrition and other amenities without which the best medical service would be ineffective. The service would be organized in local health units, which must be democratic. Every patient must have a home-doctor service, a health centre, and a hospital service. The service must be free for all. Doctors must have regular hours of duty and leisure and that security of living standards which would be given by a full-time salaried service.

Correspondence

Local Anaesthesia in General Surgery

SIR,—Too often the claims of local anaesthesia are passed over without receiving the attention they deserve. Mr. Harold Dodd's article (September 14, 1940, p. 345) stimulates me to relate our experiences in this connexion.

We were forced to practise this type of anaesthesia because war conditions prevented our obtaining adequate supplies of liquid anaesthetics. None of the gases have ever been obtainable in this part of the world. Novocain can be sent in a flat letter through the post, and by air if necessary, in quantities sufficient for many operations with very little difficulty. Local anaesthesia solves a problem for the hospital administrator.

My surgical colleague, Mr. J. C. Pedley, has not found his art restricted on this account, but as wide a variety of operations as our practice requires have been performed. I am not at present in a position to produce figures, but the following list will show the type of work that has been accomplished; All operations within and around the eyeball and orbit. All dental operations and operations on the soft tissues of the mouth and larynx. Dissection of the glands of neck—usually for tuberculosis. Thyroidectomy for large non-toxic adenomata (thyrotoxicosis never occurs in this part of China). Laparotomies—chiefly for hydatid and ovarian cysts, Caesarean sections, with and without hysterectomy, for cases of osteomalacia with obstructed labour. Strangulated herniae. All operations on the rectum, perineum, and external genitals, including anterior colporrhaphies and circumcisions. All operations on the bones and joints of the limbs.

In all these cases local infiltration of the anaesthetic is never performed, but the nerves or nerve plexuses supplying the part are blocked at some distance from the seat of operation. This avoids the bugbear of post-operative sloughing, such as is so commonly seen after circumcisions done under "local anaesthesia." For this reason we prefer to use the term "regional anaesthesia." We are discarding spinal anaesthesia in favour of this type because of its general symptoms. The advantages to the surgeon are many. He can operate in comfort, knowing that his patient is presented with no appreciable anaesthetic risk. He is never obstructed by the anaesthetist or the anaesthetic apparatus when working in the region of the head. He can enjoy perfect anaesthesia over as wide an area as he desires.

It requires patience and practice before the anaesthetist is as skilled in producing this type of anaesthesia as he is in using the "generals." But any skill worth the name is only attained by hard work. Even the most lengthy procedures such as paravertebral blocking can be performed within fifteen minutes. The anaesthetist is then free to assist the surgeon. When there is a shortage of help the surgeon can be his own anaesthetist. There would be no need to scream about the use of unqualified anaesthetists in wartime if each surgeon would learn to perform these manœuvres.

The gain to the patient is inestimable. Occasionally we use premedication such as morphine. Our patients—Chinese, Moslems, and Tibetans—are of average sensitivity. The patient avoids the unpleasant effects of general anaesthesia, both before and after the operation. If rightly handled in the theatre the patient suffers no mental trauma, but is infinitely better off for not having been forcibly removed from and brought back into consciousness. He is no longer a problem to the nursing