unsecured ladders. *The Annual Report of the Chief Inspector of Factories* for 1971⁴ reported 443 cases of ladder accidents in factories in the second quarter of the year which had been investigated. Of these, loss of control had occurred in 182 cases when the ladder was stable and in 229 cases when the ladder became unstable. It was assumed that precautions were not justified when either the time required to do the job was short or the height at which the job was done was not great. Though no references were made in this report to window cleaners, some of the points raised were applicable—for example, when payment was based on the number of windows cleaned in a given time safety standards were often ignored, with tragic consequences.

The Royal College of Surgeons in 1961,⁵ in a report on accident prevention and life saving, found that 75% of accidents were caused by human factors, particularly the failure to use protective equipment and a feckless attitude to safety at work. They recommended that the use of protective equipment should be enforced. Most window cleaners in this series were most at risk when working from window sills. Falls were attributable as much to carelessness by the cleaners as to defects in the windows or sills and injury could have been prevented by the wearing of protective equipment. The implementation of better safety standards and the need for a general code of practice applying to all window cleaners could best be served through effective training. An estimated 30% of window cleaners employed by cleaning agencies enjoy union representation and are provided with a code of practice outlining possible hazards. The remainder, being self-employed, enjoy no

such privileges. There are no figures available for the numbers of window cleaners killed or disabled each year. In the United Kingdom the Inspectorate of Factories reported 68 deaths during 1966-71 as a result of falls from ladders. Nade and Monahan,⁶ in a survey of 203 fractures of the calcaneum, found that in 189 patients symptoms still present two years after the injury showed little tendency to improve. Of these patients 14% had changed jobs as a direct result of their injuries. In this series of 20 window cleaners all the patients with fractures of the calcaneum were severely disabled by their injuries and none was able to return to window cleaning permanently.

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Aspects of Sexual Medicine

Sexual Problems in Disorders of the Nervous System

II. Psychological Reactions

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Disease of the spinal cord will result in impaired sexual function, and the severity of this impairment will depend on the extent of the neurological damage. The result is that the conventionally accepted view of sexual satisfaction culminating in orgasm will not be obtainable for most patients. Nevertheless, the psychical component is still preserved and function is retained in the normally innervated parts of the body, as is the function of the organs of sight, hearing, touch, and smell, so that the general principles of rehabilitating paraplegic patients still pertain—that is, using the rest of the normally innervated body to compensate for the loss of function in the paralysed parts. As in other fields in paraplegia, the aim of rehabilitation in the sexual field is not necessarily to achieve normal function again—this, by virtue of the intrinsic properties of the nerve cell, is not

possible—but to enable the patients to compensate for their disabilities by using their remaining faculties to satisfy their partners and thus, secondarily, themselves.

Counselling

Not only must the doctor be aware of the sexual problems in disorders of the nervous system but he must also know how to advise the patients. The doctor's own social and cultural attitudes may well encourage or prevent meaningful counselling. It is no good thinking that because the patient does not ask questions he is quite satisfied with his situation and that no advice is needed. This is the refuge of doctors who are embarrassed about discussing patients' sexual problems with them. On the other hand, aggressively approaching the patient in a jocular fashion may lead to severe embarrassment. Each patient must be treated individually, but certain guidelines can be laid down.

In a patient with a spinal cord injury, as soon as it is reasonable in the first few weeks, the position with regard to the severity of his injury is explained to him. The prognosis with regard to his bladder, bowel, and sexual function, working possibilities, and housing are discussed. All aspects of the sexual prognosis may not be known at this stage, but the possible sexual problems may

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be outlined, and later, when the patient is in a wheelchair, he can be seen in private in the doctor's office and the problem can be explored in greater depth. It is left in an open-ended manner so that the patient feels free to come back and discuss the matter with his partner and then see the doctor again in private. It should be added that many partners find it embarrassing to be approached on this matter, and there is certainly need for female counselling. A useful way of helping patients is to arrange for a panel of similarly affected patients to be available to advise. Obviously each disorder of the nervous system, depending on its speed of onset and whether there is mental involvement, will have to be tackled in a different manner, but the general rules and experience from paraplegic patients may be extrapolated.

Psychological Reactions

Though the first part of this article presented a reasonably optimistic picture of sexual activity,¹ many of the problems are psychological ones. Masters and Johnson have repeatedly said that social and cultural deprivation and ignorance of sexual physiology remain the greatest problems.² They insist on seeing the relationship between the partners as the problem, and recommend counselling between the partners. We think it essential to see both partners, but recognize that this cannot always be achieved.

Role Expectations.—The role expectations of men and women are deeply rooted in our culture, and there is a concept of a hierarchical order of sexual activity passing from kissing to caressing to penile penetration of the vagina. This goal-oriented concept is often mythical from the woman's point of view, as becomes clear when women writers express more openly their own sexual opinions. They stress the importance of not being treated as a hollow receptacle for sperm or as a pleasure-giving machine for men, preferring to be held tenderly and caressed. Some wives treat their paralysed husbands as children and welcome this relationship as it enables them to ensure that they will always be needed, thus satisfying a deep-seated need for dependence. In fact, some people actively seek out such severely disabled partners to complement this and will only accept marriage on such a basis.

When a patient is in hospital for a long time the other partner has to assume a different role. The wife has to undertake responsibility usually carried entirely by the husband, and she may not willingly relinquish this on his return home. If the wife is the patient, the husband may have to assume the responsibility of running the home and caring for the children. It is hardly surprising that there is no such reluctance on his part to relinquish such a 24-hour task and return to the well-ordered ease and freedom of regular work.

Self Image.—One of the earliest reactions to a cord injury is the loss of seeing oneself as being worthy of sexual interest, owing to performance fears, deformities, pain, disordered sensation from hypersensitive areas, the wearing of urinals or waterproof clothing, the inability to carry out perianal toilet, erratic bladder and bowel control, and the inability to sustain an erection. These problems and fears should be explored early on.

General Interviewing and Therapeutic Procedures

Frank discussions about sex need not be as difficult as many doctors think, especially if the doctor is aware of his or her own cultural and religious attitudes. As the topic is a delicate one, however, several interviews may be necessary. The kind of questions that may be explored are: Male and female role expectations; must the male be the dominant initiator? Is vaginal penetration always required? Is orgasm always necessary? Details about premorbid sexual function, expectations, and difficulties; social, religious, and cultural factors; compensation for certain sensory difficulties by emphasizing the remaining function—for example, touch, massage, sight, fantasy, hearing, which may be reinforced by suitable music,

odours, perfume, lighting, etc.; What gives the partners pleasure? Have these changed in any way? Does the functioning partner have any fears of harming the other, for example, causing pressure sores, infection, or fractures?

The patient and his partner should be encouraged to experiment with different techniques and positions. Oral, manual, and instrumental (vibrators etc.) stimulation can afford great pleasure, as can stimulation above the level of the cord injury. An examination of the partners' previous life styles may show whether other sexual outlets, such as masturbation or rectal stimulation, or other sexual relationships could be tolerated.

PRACTICAL ADVICE

It is important at the outset that the sexes should mix freely on spinal units and in neurological wards so that they become confident and establish relationships with each other, thus recreating their personalities in a sexual role. At the earliest possible opportunity trial weekends should be encouraged so that patients can go home and resume, as quickly as possible, a sexual relationship with their partner.

It must be emphasized and explained to the patient that he or she still has sexual function and that it may be possible for him or her to have intercourse, with emissions in the case of the man, and for a woman to continue to have periods and children. The man should be told of his chances of fathering children and the availability of sperm tests to examine the motility of the sperms and see whether they are normal in form. Patients require definite information, not generalizations.

Many patients have only transient erections produced during a spasm, which do not allow satisfactory intercourse to be achieved. In such cases the use of artificial splints and appliances may be of great benefit. Many patients, however, are unwilling to use artificial splints for psychological reasons; in fact many are unwilling to allow their wives to assume the dominant position, regarding this as a form of perversion. Some prefer to satisfy their partners by hand or mouth in order to produce an orgasm. In patients with lower lesions where there is flaccidity of the penis the patient should be instructed either to apply a condom around the base of the penis to maintain the erection or let his wife assume the superior position, thus trapping the penis within her, adducting the legs.

With this advice patients may still be unwilling to attempt intercourse, giving various reasons—for example, that it is too much trouble or work; that it is not spontaneous; that they dislike the position; that it gives rise to abnormal reactions of high blood pressure, which are dangerous; or that they find it distasteful. Though most patients retain their sex interest and drive, the denervation of the lower part of the body seems to deprive some men of their sexual drive. Just as psychical influences by vision and thought, can influence the genital area, so impulses arising in the genital organs can direct thoughts towards sex. It must be recognized that not all wives feel deprived and some find the loss of sexual activity in the husband quite a relief, as they are often extremely tired with the effort of looking after young children and a paralysed husband, and they are relieved of the fear of pregnancy.

SPECIAL TESTS AND DRUG TREATMENT

It is unusual to carry out special investigations until patients have been home for a few months and attempted intercourse. When they come back for a check-up six weeks after injury tests can be discussed and the position reviewed. Many patients are unable to have erections and emissions, and they are naturally anxious to know whether semen could be obtained from them to artificially fertilize their partners.

The male patient may be able to produce a specimen of semen either manually or during intercourse and this can then be examined for the presence of abnormal forms and for the motility of the sperm. From the many patients who are unable

to produce semen in this way it may be obtained by either intrathecal injection of neostigmine or electrical stimulation of the rectum. These are hospital procedures. The semen thus provided can be used to fertilize the partner, but in patients with high spinal lesions above T 5 these procedures may cause severe autonomic reactions. In most cases if semen cannot be obtained naturally by the patient performing intercourse it is unlikely to be fertile, and few pregnancies have resulted from these techniques.

Drug treatment to stimulate fertility is of little value, though many patients insist on it. General measures to raise the patients' health, by dealing with urinary tract infections and by stopping drugs that may be impairing erection, are perhaps the most valuable lines of treatment.

Artificial insemination may be carried out and adoption is extremely valuable. Though the authorities are normally loath to entrust children to disabled parents their attitude is fairly liberal and many paraplegic patients have adopted children, with enormous benefit to parents and children alike.

HELP

Help should be given in the home, since there are certain aspects of the patient's care, such as bowel evacuations, that his

wife may find distasteful, and perhaps help could be obtained from the district nurses.

It cannot be emphasized too strongly that discussion between partners and experimentation are most important, and, though neither partner may be able to achieve an orgasm, immeasurable pleasure may be gained. To be doomed to celibacy is at the best misleading and at the worst harmful.

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Outside Medicine

Thompson: Marine Biologist

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John Vaughan Thompson was an Army surgeon whose service spanned the later Napoleonic period, taking him to many parts of the world, but his reputation rests on his studies as a naturalist, especially in marine biology. Working far from the contemporary centres of scientific and intellectual development, he nevertheless made several fundamental contributions to zoology by acute practical observation and by an appreciation of the implications of his discoveries. Though his studies on marine invertebrates tended to be controversial at the time, they were fairly soon absorbed into the main stream of zoological knowledge, so that his name is not well known today even among marine biologists.

Army Surgeon

Thompson was born on 19 November 1779, it is thought at Berwick-on-Tweed. His boyhood was spent in the neighbourhood, and he studied medicine at the University of Edinburgh in 1797 and 1798, reading anatomy, surgery, midwifery, and botany. Whether as a result of the association between medicine

and botany or from direct interest, he evidently made a deep study of the plants in the area of his home, for before he had reached the age of 20 he had compiled a *Catalogue of plants growing in the vicinity of Berwick-upon-Tweed* (a small octavo of 132 pages, published in 1807), which showed a very complete knowledge of the plants of the region and of the literature of the period.¹ Thompson's interest in plants was to be continued throughout his life. However, before the publication of his Berwick-on-Tweed plant catalogue, Thompson had taken the first steps of his army career. On 4 March 1799 he enlisted as assistant surgeon in the Prince of Wales's Own Fencible Regiment, raised by Sir William Johnston, of Hilton, Aberdeenshire, in 1798.² In December 1799 he was with his regiment in Gibraltar and in March 1800 he accompanied it to the West Indies and Guyana, then in the throes of a war between Britain and Holland and France. While in the Caribbean region Thompson was appointed assistant surgeon to the 37th Regiment of Foot, and in June 1803 he was promoted to surgeon. He is said to have remained in the West Indies until 1809, but there is evidence that he was in London during April to June 1807.

At this period Thompson's natural history activities were mainly botanical. In 1807 two communications of his were read to the Linnean Society, "On the genus *Kaempferia*" in April, and in June, "An account of some new species of *Piper* [Pepper]." . . . The latter was published in 1808, and contains a short personal note (uncharacteristic of his later scientific writings): "I had proposed, when in the West Indies, to make drawings of all that I should meet with; but my professional occupations

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