disk is a clinical and pathological entity. It is fortunate that Dr. Love himself (*Proc. roy. Soc. Med.*, 1939, **32**, 1697) has recently restated with the utmost fairness the views generally accepted in America. This article itself is a complete answer to Mr. Pappworth, and should do much to advance knowledge on this side of the Atlantic. It is only necessary to emphasize several minor points.

It is by no means true to say that the appearance of the prolapsed disk after injection of lipiodol is "not clear." The smoothly rounded defect of an extradural type opposite an intervertebral space on the antero-lateral aspect of the cord is very characteristic, but it must be realized that if this defect is a small one it may be overlooked if the patient is not examined on a tilting table, when the actual flow of the oil can be observed. This point has been mentioned by Dr. Campbell Golding, and is one which may explain some of the failures of English radiologists to demonstrate the lesion.

Dr. Love explains that his cases at the Mayo Clinic are referred to him by the orthopaedic surgeons, but that the operation itself is a neurosurgical procedure. Mr. Pappworth views it from the orthopaedic angle, and asks if laminectomy is the only treatment. It should be clearly realized that the aim of operation is not to perform a laminectomy but to remove the prolapsed disk; that the orthopaedic approach is only a stage in the treatment. It is not too much to say that much of the odium which has been heaped on the operation in America itself is due to the efforts of orthopaedic surgeons, who have been content with simple decompression by a laminectomy without removing the disk, and who have been disappointed with the end-results. Indeed, I believe that in several cases the disk has been removed through the interval between adjacent laminae without touching the lamina at all.

To argue that a lesion which can so project into the spinal canal as to reduce its calibre by at least one-half and yet cause no compression of the cord or nerve roots is to me flying in the face of all commonly accepted principles. We have no great difficulty in visualizing that a subdural haematoma can compress the brain, and I cannot see that it is logical to imagine that the spinal canal, which is equally a closed space, will behave differently. And certainly to anyone who has seen the defects in the lipiodol column either under the screen or on the radiograph there can be no question that there is an encroachment of some sort upon the canal.

I therefore conclude that Mr. Pappworth has failed to make good his claims, and that, to quote Dr. Love, "intraspinal protrusion of the intervertebral disks is a pathological entity. . . . It has a fairly definite symptom complex . . . laminectomy with removal of the protruded intervertebral disk should be performed . . . the results in 300 cases justify the method."—I am, etc.,

Leicester, Nov. 27. E. PETER ALLEN.

SIR,—In an article in your issue of November 25 (p. 1038) a contributor discusses retropulsion of the nucleus pulposus. The paper appears to be based entirely upon the meaning which Mr. Sidney Pappworth reads into the well-known work of Mixter and Barr. I find myself at variance with almost every statement made in this piece of armchair criticism, but had perhaps better confine myself to dealing with the three questions which Mr. Pappworth raised and answered.

1. Can retropulsion of the nucleus pulposus cause symptoms? If by this term Mr. Pappworth means the small and often multiple lesions found by Andrae in post-mortem specimens the answer is, almost certainly, No. It is a rupture of an intervertebral disk which causes neurological disturbance—a much larger lesion than that described by Andrae. The latter has probably no clinical significance in the present connexion. Mr. Pappworth does not apparently understand the pathology of the symptom-producing lesion.

2. Is laminectomy the only treatment? If symptoms are severe and persistent and a ruptured intervertebral disk has been demonstrated its excision is the only treatment. If Mr. Pappworth had seen one of these large fibrocartilaginous masses removed at operation I think he would realize the futility of waiting until it was "absorbed or cicatrized." As an orthopaedic surgeon he had better consider waiting until a torn medial meniscus in the knee-joint has been absorbed or cicatrized.

3. Are the results of laminectomy such as to justify operation? One has only to study the figures of Mixter and Love to feel satisfied that the results more than justify laminectomy; they indeed indicate it. Anyone who has seen a patient entirely incapacitated over a period of many months immediately relieved of symptoms by the operation will realize the value of this new method of treatment in suitable cases.

In speaking of the diagnosis of disk lesions Mr. Pappworth remarks that "the true appearance of a disk lesion is not too clear." This is a surprising statement, as the radiological features have been clearly set out since Mixter's earlier papers and have also been described in detail by his radiological colleagues. I find myself in agreement with two of Mr. Pappworth's statements: the first, that there should be a close season for the writing of articles; the second, that he is fortunate in having had enough leisure to examine the claims for a new procedure before operating, for I am certain that an operation carried out without a proper understanding of the lesion it is designed to treat can lead only to the disappointment of patient and surgeon. In this particular case it will also tend to obscure the value of Mixter's excellent work.—I am, etc.,

London, W.1, Dec. 1. J. E. A. O'CONNELL.

Treatment of War Wounds

SIR,—Dr. Bhatia (November 25, p. 1062) raises the issue between plain gauze and vaseline gauze. I think everyone has experienced the disadvantage of the use of gauze with its wide mesh which can easily be penetrated by granulations. As a result the deepest strands of gauze are often built into the granulation tissue and can only be torn out by force with pain and haemorrhage. This happens to a considerable degree in spite of thorough impregnation with vaseline. To avoid this undesirable event I have for years laid on the deep surface of the saucerized wound a layer of ordinary thin linen bandage, about fifty threads to the inch. Until recently this, too, was impregnated with vaseline; now it is plain. Two or three six-inch lengths of four-inch or six-inch bandage will generally cover a moderate-sized wound. Each slightly overlaps the next. As the gauze packing is subsequently pushed gently into the wound it carries this thin linen "tablecloth" in front of it. The mesh is too fine for penetration by granulation tissue but offers no resistance to soakage. Weeks later it peels off the granulations far more easily than gauze, with little or no discomfort and much less bleeding.—I am, etc.,

Headington, Oxford, Nov. 28. G. R. GIRDLESTONE.

Treatment of Wounds by Closed Method

SIR,—The remarkable results obtained by Dr. Trueta by the closed-plaster method of treating excised bomb wounds are arresting to those who gave thought to wound treatment in the last war.

It was obvious that the minds of many present at Dr. Trueta's lecture at the Royal Society of Medicine were groping for a satisfactory explanation of this revolutionary method. Much light is thrown on the application of the closed principle in an article in the *Australian and New Zealand Journal of Surgery* of July, 1939 (p. 72), by Fay Maclure, on mechanical principles in the causation and treatment of disease, under the heading of "Limiting and Enveloping Membranes." He writes:

"Life is dependent on tension. . . . There must of necessity be a restraining or limiting layer of membrane. When the integrity of the enveloping membrane is destroyed, as, for example, in herniation of muscle through torn fascia, the mechanics of the contents is completely disordered. One of its principal effects is on the circulation. . . . The rebound mechanism whereby the energy of arterial pressure is transformed into an accessory pump, maintaining the flow of lymph and venous fluid, is dependent on a resistant layer. When that membrane disappears the area of loss becomes an area of failing circulation, and stagnation and oedema ensue. To restore the circulation in the affected part it is necessary