for classification. The Local Board (the Superior Court, if you will) decides on the classification. If an appeal is taken to this decision, the Appellate Court (our Selective Service Appeal Board with a medical member) decides the appeal. The potential Trainee is then presented to the Medical Supreme Court (the Induction Station Group, if you will), and a medical decision of finality is rendered there.

Carrying the comparison further in the court structure, Superior Courts and Appeal Courts are quite certain to base their decisions on those of the Supreme Court, even though the Supreme Court judges are just other groups of lawyers as are the judges of the Superior and Appellate Courts. In a like manner, is it not logical for our boards (with their medical advisors) to take their interpretations from the interpretations of finality of the Induction Boards, even though these latter boards may only be "just other groups of doctors"? It is necessary for all doctors to seriously consider the interpretations of a single authoritative source (such as the Corps Area Surgeon) and be ready to "bend" a bit to acceptable policies which benefit all, even though there might be some ground to back up opposing thoughts which have proven unacceptable at induction stations.

The Surgeon of the Ninth Corps Area has recognized the need for a common yardstick. He has assigned a most able medical liaison officer between the Corps Area and the Induction Stations and the Selective Service System. His effort is being felt. Any apparent deviation from common policy is quickly brought into line.

GROUP EXAMINING—ANOTHER UNIFYING POSSIBILITY

We feel certain of our ground when we say that another most satisfactory method of reaching our goal is that of group examining. Doctors working in well-organized large groups are very likely to think alike. This has proven the case in many groups now operating in California. As rapidly as we can, we are organizing more groups for examining. These are especially fitted to serve in the larger communities, but such groups as the one operating in Los Gatos, for instance, proves that they may be fitted to any population. Group examining has other advantages: time is saved, conveniences (such as eliminating difficulty of appointments and interference with private practice) are gained, and, as Colonel Rowntree aptly puts it, "it removes about 50 per cent of the burden and almost 100 per cent of the drudgery."

Fortunately, at this time, we can inform you that, daily, the team is working more smoothly; and the greater reason for this is because of the splendid coöperation of your members. They are serving well, at a hard task, and we sincerely thank the California Medical Association for its wholehearted coöperation.

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STRETCHING TEST IN NEURITIS*

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A FULLY developed polyneuritis may be easily diagnosed, but an isolated mononeuritis affecting a single sensory or mixed nerve sometimes presents considerable diagnostic difficulty. As symptoms of these not uncommon mononeuritides are often slight and unobtrusive, they are, as a rule, not recognized early. Early diagnosis is all the more important because a serious underlying condition, of which mononeuritis is only a part, may exist.

The purpose of this paper is to stress the practical value of a simple test for neuritis, which is known, but deserves more attention and elaboration. This test is based on the supposition previously formulated,[1] as follows: "To no other stimulus does a diseased nerve react so early and so markedly as to passive stretching." To such passive stretching, especially when it is done briskly, the nerve reacts with pain, which is felt in the nerve itself or in its cutaneous area.

DIFFERENT TESTS

The famous phenomenon that Lasègue found in sciatica is based on this principle. In sciatica the patient, lying horizontally on his back, experiences sharp pain when his extended leg is passively raised; bending of the raised knee causes the pain to disappear. The pain, which is due to stretching of the sciatic nerve, disappears when the nerve is relaxed. How painful this elongation of the nerve may be in sciatica is clearly shown by the fact that, in performance of the therapeutic stretching of the nerve formerly recommended in cases of adhesions, narcosis had to be administered. Neurologists unanimously agree that Lasègue's phenomenon is of great diagnostic importance. A positive Lasègue test has been found in up to 91.5 per cent of the cases of sciatica. Love and Walsh[2] found it in 82 per cent of their cases of protruded lumbar discs. Since Lasègue described his phenomenon in 1861, many modifications of his maneuver have been introduced. Some of these are: additional dorsiflexion, supination of the foot, dorsiflexion of the big toe, and adduction and inward rotation of the leg. The effect of this test on the sciatic nerve, as originally applied or of the modifications cited, has been shown by experiments which prove that the ends of the sciatic nerve may be separated as much as 3.5 to 7 centimeters.

In the sciatica test of Neri the knee on the diseased side will flex on bending the trunk with legs extended. In the test of Fajerstein, pain is produced in the diseased leg when the healthy leg is forcibly swung forward while the patient is standing. Forced bending of the head may provoke pain in the diseased leg. On arising from a recumbent position, the patient bends the knee on the diseased side to prevent painful stretching.

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Also flexing the trunk toward the healthy side causes pain in sciatica.

All these different tests for sciatica show the same mechanism: in all of them, pain is produced by stretching of the nerve.

The principle of Lasègue's test has been applied in affections of other nerves. A patient with a diseased femoral nerve experiences pain in the prone position when his knee is bent and his thigh is lifted, *i. e.,* dorsiflexed (André-Thomas, Wassermann[3]). In severe cases of brachial neuralgia, Meyer[4] found a marked exacerbation of pain in the arm when the patient assumed a "shaving" position with the head rotated and bent toward the healthy side. In all these maneuvers stretching of the nerves produces pain.

The same tenderness of the nerves when stretched can be found to an even more pronounced degree in affections involving exclusively the cutaneous nerves. These affections have not yet received the attention they deserve in the neurologic textbooks and literature. Among them we may distinguish three types. The first of these is a sensory polyneuritis which involves diffusely the sensory cutaneous nerves of the body in a more or less generalized form. This affection of the cutaneous nerves is not preliminary to a diffuse motor polyneuritis, but remains restricted to the cutaneous nerves. The works of Tchitchkina,[5] Meyer,[6] Schulze,[7] and others, have contributed, in recent years, to the recognition of this clinical entity. The second are sensory mononeuritides in which a single cutaneous nerve, purely sensory in function, is affected. The following sensory nerves may, for instance, be affected singly: the lateral cutaneous nerve of the thigh (meralgia paraesthetica), the superficial branch of the radial nerve (cheiralgia paraesthetica), the cutaneous branches of the femoral nerve (meralgia anterior), the posterior rami of the spinal nerves (notalgia paraesthetica), the sural nerve, the cutaneous branch of the obturator nerve, the saphenus nerve, the posterior cutaneous nerve of the forearm, the dorsal cutaneous branch of the ulnar nerve, and the auriculo-temporal nerve. The third is a disease that may be called "multiple sensory mononeuritis." In this condition several purely cutaneous nerves, in widely separated areas, are simultaneously or consecutively affected. The differential diagnosis from a sensory polyneuritis is, of course, sometimes difficult. The important fact is that in multiple mononeuritis the affection does not become generalized (Schlesinger,[8,9] Lazarew[10]), and the course is much milder and more protracted, being characterized by intermissions and remissions. In the light of our present knowledge and experiences we could hardly say, as Gowers[11] did in 1907, that the affection of the sensory nerves of the skin very seldom exists alone.

ETIOLOGY OF SENSORY NEURITIDES

The etiology of the sensory neuritides may be the same as that of the motor or mixed types. In the etiology of the mononeuritides, local mechanical and static conditions often play an important rôle. In many cases the etiology is obscure; in some, arteriosclerosis or some other vascular process may be held responsible. It can be said with some degree of certainty that any affection of the nutrient vessels of the nerves may produce neuritis (Schlesinger,[12] Marcus[13]). In some cases alcoholism, rheumatism, nicotine addiction, gout, or latent diabetes may possibly be considered as etiologic factors. In some of the cases I studied, no etiologic factors whatsoever could be established, even after prolonged and careful observation. But in my mind there is no doubt that some unknown general constitutional factor must have been involved. What Wilson[14] said about the etiology of neuritis of the facial nerve applies to these neuritides: "To be compelled to resort to some form of 'predisposition' (anatomical or otherwise) is unsatisfactory, but perhaps inevitable."

The symptoms of these sensory mono- or multiple neuritides are often surprisingly mild and meager. Irritative phenomena, such as pain or hyperalgesia, may be absent or very slight, and this regardless whether the limb is at rest or in motion. The points of exit of the cutaneous nerves may not be tender to pressure. In many cases the affection may have existed for a long time before the patient was aware of it. Even intelligent patients may have noted it only incidentally by discovering a small hypesthetic spot somewhere on the most distal part of an extremity. The areas affected are usually those of the volar and dorsal digital nerves of the hand and the foot, particularly of the big and small toe, and also of the sural and saphenous nerve. In these areas no motor, reflex, vascular, vasomotor, or trophic changes are found either spontaneously or after application of heat, cold or passive hyperemia. The only objective changes are circumscribed hypesthesiae or anesthesiae for touch, pain, and temperature; slight paresthesiae occur occasionally. The distribution of sensory changes never extends over the whole area supplied by the sensory nerve involved, but is spotty. In mild cases the anesthesia or hypesthesia can best be discovered by repeatedly touching the skin very lightly with the finger, as in tickling. On the toes the sensory changes are more pronounced than on the fingers.

AUTHOR'S OBSERVATIONS

In examining certain patients with this condition, I was puzzled by their statement that occasionally, and very early in the course of the disease, they had had sharp, shooting pains in the affected area which resembled neuralgic attacks. For a long time no satisfactory explanation for this peculiar phenomenon could be found. After careful study it was discovered that the pain always appeared when the patient made a sudden movement that caused stretching of the affected nerve. If the digital nerve supplying the big toe was affected, the patient always had sharp pain in the toe—for instance, when he put on his shoes hastily or when he stretched himself in bed with maximum plantar flexion of the foot. The same pain could be elicited when the examiner brought the limb briskly or even slowly into a position that stretched the affected nerve. Each time this was done the

pain was produced. The more quickly the stretching was performed the more painful it was. The sharp pain was felt in the hypesthetic area, but it subsided quickly. Occasionally the hypesthesia became more pronounced after this stretching maneuver. To produce this pain passively, the optimal position for every nerve, as well as the optimal direction for the movement of the limb, must be found if elongation is to result. A cutaneous nerve that rests on a hard layer reacts more easily and more promptly. Pain on stretching was in some cases the first signal to the patient of the presence of his nervous affection, its degree of severity paralleled the gravity of the disease, and it was the last sign to disappear. It could be demonstrated years after all other signs of the sensory neuritis had disappeared. In cases of cheiralgia paraesthetica (isolated neuritis of the superficial branch of the radial nerve), pain in the thumb on stretching could be demonstrated as long as seven years after the sensory changes had disappeared completely.

COMMENT

From a review of the cases, and considering the mildness of the clinical symptoms and signs of sensory neuritis, the impression is gained that pain on stretching of a nerve constitutes the most outstanding feature of the disease. Especially striking is the marked difference between the reaction of the nerve to stretching and its reaction to other stimuli, such as pressure. The appearance of severe pain in the anesthetic area, due to stretching of the nerve, is so striking that the so-called "anesthesia dolorosa," often observed in neuritis, may possibly be caused by sudden involuntary stretching of the affected nerve.

This test has proved helpful in the diagnosis and differential diagnosis of neuritides. The maneuver of stretching can be so arranged as to affect only one particular nerve. Thus, spinal, radicular, plexus affections can be excluded. The great value of this stretching test consists in its invariable constancy as long as there is the slightest objective sign of neuritis, and even long afterward. It is, so to speak, the "ultimum moriens." Furthermore, it is always present in every case, so that if no pain occurs on stretching the nerve, peripheral neuritis may be ruled out.

In affections of the peripheral nerves the stretching test has proved to be more valuable than the sign of Tinel, which consists of distant tingling on percussion of a locally diseased nerve. The Tinel sign is less valuable because, first, it is not always present in diffuse affections of a nerve, and secondly, in circumscribed affections the stretching test remains positive after the Tinel test has become negative.

The marked tenderness of a diseased nerve to traction as demonstrated by this test is clearly evident from the grotesque postures assumed by patients with mononeuritis in order to protect the affected nerve from stretching. Some forms of sciatic scoliosis may be explained in this way. The patient with a painful neuritis of the femoral nerve leans toward the diseased side when standing, and the patient with an occipital neuralgia inclines his head back and toward the affected side. These postures are attempts to lighten the strain on the nerve trunk. There are many other examples of these "algogenous contractures." They are protective mechanisms for maximal relaxation which often operate, so to speak, at far-advanced posts against any possible traction on the diseased nerve.

How severely stretching may affect a nerve is seen from the pathologic reaction of a *healthy* nerve to stretching. We know that in the etiology of neuritis sudden and violent stretching of a limb plays an important part. This is especially true of the brachial plexus, which is statically and mechanically located most unfavorably, and even when normal works under strong tension. Comparatively slight trauma, inflicted by a sudden violent stretching of the arm, even without consequent surgical injuries to the surface, muscles or joints, may severely damage or actually tear apart the brachial plexus. Of great practical importance are cases of brachial neuritis, in which a sudden stretching of the nerves of the brachial plexus produces long-standing, stubborn brachial neuralgias, although no motor or sensory changes may occur in the affected extremity. Collier [15] and others have reported such cases. An awkward movement of the extended arm, such as may occur in falling, a sudden downward thrust of the shoulder, vigorous tossing of heavy weights, overstrain while playing tennis and similar activities, may produce such a neuralgic neuritis of the brachial plexus. Here the pathogenic factor lies apparently not so much in the extent of the excursion of the movement as in the suddenness and speed of its performance. It is the sudden stretching that causes neuritis. What Wilson [14] has said about the pathogenesis of the birth injuries applies to other injuries of the brachial plexus as well: "Traction is a much more potent factor than compression." I have seen cases of such stretch neuritis of the brachial plexus with predominantly neuralgic, vasomotor, and vegetative phenomena, in which the further course showed that this diagnosis was more appropriate than a diagnosis of hypertrophic cervical arthritis, spinal cord lesion, or tenosynovitis, which had been made during the early course of the disease.

SUMMARY

Every diseased peripheral, mixed, or especially sensory nerve, reacts with pain to brisk, passive stretching. This is a constant, very early and very late sign of every sensory neuritis.

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REFERENCES

1. Wartenberg, R.: Kleine Hilfsmittel der neurologischen Diagnostik, Nervenarzt, 3:594, 1930.
2. Love, T. G., and Walsh, M. N.: Protruded Intervertebral Disks, J. A. M. A. 111:396, 1938.
3. Wassermann, S.: Über ein neues Schenkelnervsymptom, Deut. Ztschr. f. Nervenh. 63:140, 1919.
4. Meyer, O. B.: Über Neuralgia Brachialis, Klin. Wchnschr. 51:1593, 1914.
5. Tchitchkina, V.: Etude sur les formes sensitives des polynévrites. Paris: G. Steinheil, 1901.
6. Meyer, O. B.: Über sensible Polyneuritis, Deut. Ztschr. f. Nervenh. 74:198, 1922.
7. Schulze, F.: Acute disseminierte Hauthyperalgesie (multiple sensible neuritis?), Deut. Ztschr. f. Nervenh. 87:108, 1925.

8. Schlesinger, H.: Über Neuritis multiplex cutanea, Neurol. Centralbl. 30:1218, 1911.
9. Schlesinger, H.: Zur Lehre von den multiplen Hautnervenaffectionen, Beitr. z. Dermatol. und Syphil., 1900.
10. Lazarew, W.: Zum Kapitel der multiplen Neuritis der Hautnerven, Deut. Ztschr. f. Nervenh. 102:287, 1928.
11. Gowers, W. R.: A Manual of the Diseases of the Nervous System. Third edition. Philadelphia: P. Blakiston, p. 158, 1907.
12. Schlesinger, H.: Über eine wenig bekannte Form der vaskulären Neuritis, Wien. med. Wchnschr. 83:98, 1933.
13. Marcus, H.: Polyneuritis perivasculitica, Acta Psychiat. et. Neurol. 8:297, 1933.
14. Wilson, S. A. K.: Neurology, London, ed. Arnold & Company, p. 270, 1940.
15. Collier, J.: Peripheral Neuritis, Edinburgh Med. J., New Series, 39:601, 1932.

POSTGRADUATE EDUCATION IN OBSTETRICS*

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OURS is an age of change. Political concepts, social distinctions, and national boundaries are in a state of turbulence and unrest. Even the very laws of physics and chemistry have not resisted the general upheaval, since the development of the cyclotron has rapidly made necessary new interpretations of what were thought to be static relationships. My father often remarked that he had lived longer than Methusela, since, during his lifetime, there had been a greater alteration in the every-day life of man than had occurred during all of the 969 years of the fabled ancient. By that standard, each year, each month, almost each day, has set a new record for longevity. Nor are these changes confined to the world about us. Within the cloistered walls of thought that comprise Medicine, there have also been rapid mutations. Throughout our long history we have noted constant developments, but, due to our conservative background, we often are slow to recognize any but the more dramatic incidents of progress. Thus the development of insulin, the discovery of the action of the sulphonamides, and the rôle of liver extract in the combating of anemia, have each received its full mede of acclaim, whereas improvements in dietetics, in the recognition of early tuberculosis and cancer, and in the reduction of maternal death rates, are notable only when contrasted with the findings of the past.

In this Section on Obstetrics of the California Medical Association, our interest is directed to changes in the field of obstetrics and gynecology. It may truly be said that all trends and worthwhile innovations sooner or later are discussed before this body. The fact remains, however, that our tendency here is to illuminate isolated facets of the gem of medical knowledge rather than to obtain a portrayal of the whole. It would seem worthwhile, then, to consider how best we may bring the entire picture before a respectable proportion of our fellow physicians, to emphasize the highlights properly, and to eradicate the flaws that have become apparent. For this purpose, systematic postgraduate education is the only logical means available.

EARLY GRADUATE TEACHING IN THE UNITED STATES

It is interesting to remember that the earliest graduate education in this country was for the purpose of giving instruction in obstetrics. William Shippen, Jr., who had studied under Smellie and William Hunter, offered to the physicians of Philadelphia a course of eleven lectures, supplemented by manikin demonstrations and "with one natural labour at least" which, in 1762, aroused the populace to violent remonstrance. At about the same time, James Lloyd of Boston, also a student of Smellie and Hunter, received pupils for the purpose of instructing them in "natural and preternatural labour." These pioneers were subjected to the criticism of both the lay public and the profession for the impropriety of their invasion of the privacy which was woman's natural right. At least one attempt was made on Shippen's life.

So slow was the acceptance of teaching by demonstration that, when James Platt White of Buffalo conducted a delivery at a clinic of the medical department of the University of Buffalo in 1850, he was assailed by the press in scathing terms, and the recriminations of the profession were heaped upon his head. He subsequently sued one of the newspapers for libel. During the trial there was testimony by some of the leading physicians of Buffalo that the exposure of the parturient woman was wholly unnecessary, either to effect delivery or to teach obstetrics, and that such an innovation as proposed by White "shocks the moral sensibilities, diminishes the moral feeling, and debases the moral man." The American Medical Association entered the controversy, and its Committee on Medical Education, after long deliberations, stated that the exposure complained of might facilitate somewhat in the protection of the perineum, but that this was not sufficient compensation for the obvious disadvantages. Doctor White lost his suit. Ultimately, in the face of these discouragements, the first obstetrical teaching clinic in America was established in Buffalo, with Doctor White as chief—some twenty-five years after his initial attempts.

Obviously, these problems of the past are not those of today. No longer is it possible to compress all the wealth of obstetrical knowledge within the confines of eleven lectures. No longer would the observation of one delivery be classed as advanced obstetrical experience. Hence it is not possible now to present a cursory discussion of elementary values that will be received with interest. For those of us in practice, the question of the moment is "from whom or from what may we learn?" For our teachers and professors, the problem is as to how best to offer material of practical value to the practitioner.

OBSTETRIC LITERATURE

We learn, of course, from many sources. New books present their messages in compact form. A recent edition of one of the several excellent ob-

* Chairman's address. Read before the Section on Obstetrics and Gynecology at the seventieth annual session of the California Medical Association, Del Monte, May 5–8, 1941.