choroid plexus is rejected by Hassin, who adduces pathological and experimental data in support of the opposing theory that the fluid is produced by the brain tissue itself, the villi of the choroid plexus functioning merely as a mechanism for the excretion or absorption of the waste products from the spinal fluid.

R. M. S.

[145] Comparison of gold chloride, benzoin and mastic tests on cerebrospinal fluid.—J. R. Cockrill. Arch. of Neurol. and Psychiat., 1925, xiv, 455.

The author tabulates the results of 400 reactions of cerebrospinal fluids with the colloidal gold, benzoin and mastic tests. Only sixteen dissimilar reactions in all three tests were encountered, and the results appear to indicate that the benzoin and mastic are reliable reactions of approximately equal value. The technique of the benzoin test is simpler than the other two, but in special cases, such as meningitis and multiple sclerosis, requiring the original benzoin test of sixteen tubes, the colloidal gold test is preferable.

R. M. S.

SENSORIMOTOR NEUROLOGY.

[146] Inversion of the Babinski phenomenon and the conditions which give rise to it (Inversion des Babinski-Phänomens und seine Entstehungsbedingungen).—Mankowsky and Beder. Deut. Zeits. f. Nervenheilk., 1925, lxxxviii, 42.

Modification of the Babinski reflex in dependence on the position of the patient was first observed by Guillaum and Barré, flexion in the prone position changing to extension in the supine position. According to Bychowski, such a modification is to be observed in about one-third of cases, both slight and severe, unilateral and bilateral (hemiplegia, myelitis, etc.). Another observation has been made by Bauer and Biach, that when the knee jerk and the plantar reflex are simultaneously tested for, in organic corticospinal cases, the Babinski response may be inhibited by the former. Experimental work on changes in reflectivity produced by altering the posture of the extremities has been conducted by many physiologists. The Marie-Foix phenomenon is known to depend on the extension or flexion of the limb respectively before it is elicited. The author adduces much more evidence of this character than can here be summarized.

His own researches have been conducted on some eighty-four cases of organic cerebral and spinal diseases, of all sorts, in every one of which an ordinary Babinski response was present by the customary method of testing. With patient prone (instead of supine), and legs extended, no change took place, whereas when in the prone posture the leg was put in preliminary flexion a plantar response in flexion was at once elicitable in many of them (in twenty-five cases definite, in nine no movement, in six the Babinski reflex was more difficult to get, in the remaining forty-four no change from before). The percentage of change from extension to flexion was 29:7. The author has observed an apparently direct connexion between the size of the angle formed by passive preliminary flexion at the knee and the ease with which
the modification from plantar extension to flexion occurs. Various other points of an analogous kind are detailed in the paper, and there is a discussion of different possible explanations of the apparent dependence of this inversion of the Babinski reflex on the degree of flexion of the leg. The view is accepted that it is associated with the tone-grouping of the muscles of the leg, which in the particular case under investigation is in all probability dependent on proprioceptive elements in joint structures; modification of this proprioceptive afferent stream by change in joint position leads to an alteration in the grouping of muscle tone and so to the Babinski reflex inversion.

S. A. K. W.


Cases described in the literature, both spinal (compression) and cerebral, and four personal cases are considered. In all cases the lesion is an extensive and severe one, the symptoms pointing to a release of spinal automatism from cerebral control. The absence or diminution of tendon jerks and uncertainty of plantar reflex suggest an intact pyramidal system, which is sometimes confirmed post-mortem. In other cases a typical spasticity in extension with the usual reflex phenomena changes to a spasticity in flexion and concomitant reflexes. This is of grave prognostic significance and points to an extension of the lesion. Possibly spasticity in flexion is due to an extrapyramidal lesion in contradistinction to a spasticity in extension due to a pyramidal lesion, or there may be but one type of decerebrate rigidity which is modified as the lesion becomes more and more extensive.

R. G. Gordon.


The author records the presence of the Magnus and de Kleijn neck reflexes in ten out of twenty-three cases of tuberculous meningitis. They occurred with greatest frequency in children below three years of age, and could not be elicited in other forms of meningitis.

R. M. S.


In 1907 Souques described as a sign of interference with pyramidal function extension and spreading of all or some of the fingers when the hemiplegic was asked to raise his arm. In 1909 Klippel and Weil described a sign in hemiplegies in which if the hand is relaxed as far as possible and the four fingers extended the thumb is flexed and opposed. In the normal individual there is either no movement or one of extension.

The author examined for these signs in 100 infants in the first week of life and found both signs present bilaterally in a considerable percentage of cases. He concludes that these signs depend on incomplete function of the pyramidal and extrapyramidal systems. They always coexist with the contraction sign of Marie and Foix, but not always with Babinski’s sign.

R. G. Gordon.
Clinical and experimental studies on athetosis (Studio clinico e sperimentale sull' atetosi).—U. de Giacomo. Riv. di pat. nerv. e ment., 1925, xxix, 791.

Cases of ‘idiopathic’ athetosis occur which are not associated with spasticity, convulsions or mental or physical defect. In these the cortex and pyramidal system are unaffected. In those cases where the latter symptoms do occur it may be concluded that the cortex and pyramidal system are damaged by the same morbid process as is responsible for the athetosis. The symptoms of athetosis are characterized by a disturbance of muscular tone which is always increased, but at the same time is constantly varying both in respect of individual muscles and even single fibres of each muscle.

Athetotic movements which tracings show to be quite distinct from those of chorea seem to be due to a special modification of the physiopathological mechanism responsible for hypertonus. The alteration takes place in the system which controls and inhibits muscular tone independently of consciousness and will. The most important centre of this system is in the lenticular nucleus which exerts its influence on the descending pyramidal tract. While the function of this controlling system may be partially disturbed by lesions outside the lenticular nucleus, these lesions occur in parts of the brain intimately connected with it both anatomically and functionally. The exact locality of the centre in the lenticular nucleus cannot yet be determined, for congenital idiopathic athetosis seems to depend on lesions in the corpus striatum, while the rare adult type depends on lesions in the globus pallidus.

R. G. Gordon.


The author describes five different manifestations of tetany which may occur during the exercise of hyperpncea in persons affected with different diseases of the spinal cord.

The first occurs in traumatic, inflammatory or neoplastic lesions that sever the spinal cord completely or almost completely. In this condition the musculature innervated by the caudal segment of the severed cord remains as flaccid during the exercise as before it; while the muscles innervated by the cephalic portion of the cord become tetanized in a normal manner. By ‘normal’ tetany is understood a sustained rigidity of certain parts, especially of the hands and generally of one or both sides of the face.

The second manifestation occurs in diseases of the pyramidal tract. The effect of hyperpncea is to exaggerate the symptoms of this disease. The spasticity of the muscles whose corresponding pyramidal elements are injured becomes very much greater, and even when the disease of the nerve tract in question is so slight that it is not manifest by the classical signs of Babinski and of Hoffman, the effect of hyperpncea is frequently to bring about the appearance of those signs for the time being.

The third possible effect of hyperpncea is seen in cases of combined disease of the pyramidal tract and of the anterior motor cells. If a patient suffering from, say, amyotrophic lateral sclerosis breathes as deeply as possible
at a rate of from twelve to seventeen a minute there results during hyperpnoea an increase of both the tonicity of the muscles and of their fibrillation.

In meningovascular disease of the spinal cord yet another manifestation may appear. It consists of irregularly distributed rapid muscular tremors, causing a rapid vibration of the overlying skin.

Myoclonus, which constitutes the fifth phenomenon occurring during hyperpnoea, must be carefully distinguished from those described above. It is a massive contraction of the entire muscles repeated at the rate of from four to eight a second, and appears most prominently in the large musculature of the thigh, the buttocks and the hips. This phenomenon occurs in patients affected with compression of the spinal cord or of the posterior nerve roots, and is not seen in diseases which originate in, and which remain limited to, the tissue of the spinal cord.

Some interesting cases are reported in order to demonstrate the diagnostic value of the signs described by the author.

R. M. S.


A case is recorded in which the development of the full picture of torsion spasm was preceded for some years by epileptiform attacks. These at first involved the right side of the body only, and were of a purely tonic nature without disturbance of consciousness. In a typical attack the fingers were abducted and extended, the elbow extended, and the upper limb as a whole abducted and carried backwards, while the lower limb was extended with down pointing foot and toes, the head being turned slightly to the right and inclined backwards.

The attacks lasted a few seconds, and occurred as frequently as twenty-eight times in the day. Later in the history of the illness they became generalized and were accompanied by loss of consciousness. Under observation in hospital the patient showed no physical signs and the diagnosis of epilepsy was made.

Five years after the commencement of the fits involuntary movements first made their appearance in the intervals between attacks. These were at first labelled athetoid, but gradually assumed the general distribution and serpentine character of torsion spasm.

During the subsequent year disorders of speech, mastication and swallowing appeared. There was no alteration of reflexes, no sign of liver enlargement or deficiency, no corneal pigmentation. The Wassermann reaction was negative in blood and spinal fluid.

In discussing the case the author refers to other instances in the literature of an association of tonic fits with the clinical picture of striatal disease, in particular a case published by Stertz and examined histologically by Spielmeyer, in which generalized epileptiform seizures preceded the development of torsion spasm and the lesions were confined to the caudate and lenticular nuclei.
Cases of epilepsy occurring in postencephalitic Parkinsonians are also quoted. The author remarks upon the general resemblance between the tonic spasms of the epileptiform fits in his case and certain of the constituent features of torsion spasm, and suggests that both sets of phenomena are due to striatal disease.

C. P. S.


A detailed description is given of two cases of family spastic paraplegia (brother and sister), in which attacks of a peculiar kind were observable. Usually in the afternoons, perhaps about two o'clock, the patients’ limbs gradually became more and more rigid and immobile, attaining a maximum about five o’clock, when the attitude was one of head retraction, eyes open, eyeballs deviated upwards, adduction and flexion of the upper limbs, complete extension and external rotation of the lower limbs; trismus was present, dysarthria, grimacing faces, and painful muscular contractions. At the same time pulse and respiration rates were notably increased, the oculocardiac reflex was modified, while mydriasis, dryness of the mouth and hyperidrosis of the skin were present.

In the case of the brother, both atropin and hyoscine had a calming or preventive effect on the attacks, while pilocarpin and eserine accentuated the symptoms. In the case of the sister, however, no such difference in result of pharmacodynamic treatment could be found; further, on some occasions her attacks were markedly influenced in a favourable direction by injections of distilled water. More curiously still, in the authors’ opinion, the sympathetic phenomena mentioned above were cut short by distilled water.

Due attention is paid to the interpretation of the symptoms, and it is admitted that in some respects those of the sister are suggestive of a hysterical basis. But the conclusion is that the attacks are organic in origin and attributable to disorder of the extrapyramidal motor system, lesions in the basal ganglia being postulated.

S. A. K. W.


The literature is reviewed and a case is described in full. The author concludes that in the spinal cord areas of necrosis may be recognized which are essentially due to vascular thrombosis independent of inflammatory changes. The softening is exactly similar to cerebral softening of the same origin. He suggests that many cases of spinal softening ascribed to acute myelitis are really due to this purely vascular thrombosis. Similarly, degenerative
myelitis is often a misnomer, though diagnosis is difficult owing to the absence of clear evidence of the causal vascular lesion.

Clinically, the syndrome of spinal thrombosis may be distinguished from acute transverse myelitis by the absence of signs of infection influencing the general health of the patient, of root pains and meningitic symptoms, and by the sudden onset and the frequency of dissociated sensory changes. The actual symptom-complex will of course depend on the situation of the lesion.

R. G. Gordon.


Two cases are described at some length in which monosymptomatic atrophy of the small muscles of the thenar eminence (those supplied by the median nerve) was uni- or bilaterally observed; the ages of the patients were eighty and eighty-three respectively. Pathological examination showed diminution or outfall of anterior horn cells of the dorsolateral group (mainly) at the level of the sixth and seventh cervical segments exclusively. The facts are of importance from the point of view of spinal localization, since the small hand muscles are commonly regarded as having their spinal centres at a somewhat lower level. The authors are not able to offer any satisfactory pathogenic explanation of their cases, contenting themselves with the theory of an abiotrophic degeneration. This would certainly appear inadequate to account for the curious specificity of the muscular atrophy, recalling, as it does, what is seen in some uniradicular cases, and also in some cases of cervical rib.

S. A. K. W.


The experience of the author, who is a neurological surgeon attached to Professor Brouwer’s clinic in Amsterdam, is strongly in favour of the localizing value of lipiodol injection in cases of spinal compression. This paper is illustrated with fine x-ray photographs, demonstrating the points on which stress is laid. Dr. Oljenick finds that in every case the value of the method is enhanced by injection both above and below the apparent level of compression.

S. A. K. W.


An important paper devoted to the study of the incidence of neurosyphilis among the parents of congenitally neurosyphilitic children. Twenty families, each containing one or more congenital neurosyphilitics, were investigated, and as a control a second group of twenty families, in each of which one or more children suffered from congenital syphilis without demonstrable neurosyphilis were studied. It was found that in the first group 40 per cent. of the mothers and 100 per cent. of the fathers were neurosyphilitic, whereas in the
families with no neurosyphilis 5 per cent. of the mothers and 33 per cent. of the fathers were neurosyphilitic.

The high incidence of neurosyphilis among the parents of congenitally neurosyphilitic children is very suggestive evidence of the existence of a strain of spirocheta pallida possessing a selective affinity for the nervous system. On the other hand, it may also be interpreted as evidence of the existence of a familial tendency to nervous system disease. It appears, in some cases, to be a factor of importance in determining the origin of neurosyphilis, and may therefore form the basis of neuraxis involvement in some of the children, regardless of the strain of the infecting organism. Further, it is quite possible that both factors, namely, neurotropism and a constitutional tendency to nervous system syphilis, may be jointly responsible for the genesis of neurosyphilis in some persons. The question cannot be settled, however, until more experimental evidence is available, and until more is known concerning the life cycle of the organism.

R. M. S.


The clinical syndromes due to obstruction of the anterior cerebral artery may be classified as:—

1. Simple monoplegia affecting the leg.
2. Hemiplegia principally affecting the leg.
3. Either of the above associated with unilateral ideomotor apraxia affecting the left side.

These syndromes correspond to lesions:—

1. Destroying the cortex at the upper end of the fissure of Rolando, but not penetrating deeply.
2. Penetrating sufficiently deeply into the centrum ovale to destroy some of the motor fibres to the arm as they sweep over the lenticular nucleus.
3. Either of these lesions, together with destruction of the central part of the corpus callosum.

As the usual seat of thrombosis in the anterior cerebral artery is beyond its first branch the prefrontal cortex and the genu of the corpus callosum usually remain intact. The splenium, being nourished by the posterior cerebral artery, also escapes damage. But the middle part of the corpus callosum may be reduced to the thickness of a sheet of paper.

Owing to the free anastomosis which exists on the surface of the brain between the various branches of the anterior cerebral and between these and the most anterior branches of the middle cerebral artery, complete softening of a large part of the cortex is rare, except when the internal carotid is obstructed. Similarly, macroscopic softenings due to involvement of isolated branches of the anterior cerebral are not frequently encountered. The most common causal lesion is an extensive thrombosis of that part of the main trunk of the artery which overlies the corpus callosum. This leads to atrophy and softening without gross loss of substance in a quadrilateral area extending
on the external surface of the brain to the junction of the superior and middle frontal convolutions, and more deeply to the outer margin of the lateral ventricle, and descending as low as the lower border of the corpus callosum. The white matter is often more affected than the grey, so that the lesion is more obvious on section than on external examination of the brain.

The apraxia is due to involvement in the corpus callosum of the fibres passing to the right motor cortex from the eupraxic centre in the left cerebral hemisphere. It is always leftsided (at any rate in righthanded patients), no matter which side is hemiplegic. It thus contrasts with the apraxia caused by softening in the territory of the left middle cerebral artery, which is always bilateral.

J. G. GREENFIELD.


The case here reported is that of a young man, who, when puberty developed, began to suffer from attacks of loss of muscular tone following laughing, so that for the time he was scarcely able to stand upright, and at the same time he began to exhibit brief periods of sleepiness, amounting on many occasions to actual falling asleep. In the author's view the only explanation is to be found in metabolic disorder of cortex and thyroid (Abderhalden’s reaction was utilized in this connexion).

A long and interesting discussion of the phenomena is furnished, from which it is concluded that narcolepsy differs in no essential way from physiological sleep; the optic thalamus is considered to be particularly sensitive in narcolepsy, and the transient loss of tone after laughing and the inability to maintain static innervations are attributed to functional disorder of that organ. The author, further, is of the opinion that endocrine disturbance lies behind this abnormal condition of the thalamus.

S. A. K. W.

[160] Reports and communications upon migraine (Rapports et communications sur la migraine).—Christiansen and others. Revue neurol., 1925, xli, 854.

The discussion upon this subject at the annual meeting of the Neurological Society of Paris opens with a clinical report by V. Christiansen. While recognizing the importance of the hereditary factor, he considers that statistics upon this point are limited in value by the difficulties of defining the malady and obtaining an accurate family history. In ophthalmic migraine, however, it may be proved that the liability behaves as a Mendelian dominant. Head injury may reveal a latent tendency. Of occasional causes the most important is emotional stress. The symptomatology of ophthalmic migraine is described in detail. Simple migraine is defined and described as a variety of the former without the typical aura. Finally considerable space is devoted to atypical attacks, including those in which vertigo is a prominent symptom.

So-called ophthalmoplegic migraine is not accepted as such by the author. He believes that there is no true association between migraine and epilepsy. In treatment he has found bromides, luminal and nitroglycerine
of most value. Of the numerous other remedies which have been recommended he is sceptical.

Pasteur Vallery-Radot in his report upon the pathogenesis of migraine, after reviewing and rejecting other theories, sums up the evidence in favour of its vasomotor origin, and concludes that the attacks are due to stimulation of the sympathetic, with resultant vascular spasm. The sympathetic may be stimulated in various ways. Foreign proteins may excite an attack by anaphylaxis. Disturbance of the endocrine balance, digestive disorders, reflex causes, such as eye-strain or sinus trouble, variations of temperature, and emotion are also considered in detail as exciting causes; and the mechanism whereby these various factors act upon the sympathetic system is discussed.

(It is assumed throughout this report that stimulation of the cervical sympathetic causes constriction in the arteries of the cerebral cortex. The direct observations of H. Florry (Brain, 1925, xlviii, 48) have recently thrown doubt upon this.)

C. P. S.


In a total of 190 patients Ebaugh performed approximately 1,550 punctures of the cisterna magna without any serious accidents. In one case in which the cisterna magna had been distorted by blockage, a small vein from the spinal plexus was perforated, but the resulting haemorrhage was small, as was proved by necropsy a week later. In another case of terminal cerebrospinal meningitis death occurred shortly after an intracistern injection of serum, but as pulmonary edema was present when treatment was commenced, death could hardly be attributed to the operation. Forty other cases were examined post-mortem with no evidence of any pathological changes.

The chief clinical use of cistern puncture is found in the injection of anti-meningitic serum. When introduced by this route in the treatment of epidemic cerebrospinal meningitis, the serum is more widely spread and is under maximum concentration nearer the site of the disease than when the lumbar puncture method is used alone. Of eight patients treated in this way, five recovered completely. In Ebaugh’s hands the injection of arsphenaminized serum by the intracistern route has proved of no value in the treatment of neurosyphilis.

The main diagnostic indications are (1) for the diagnosis of spinal subarachnoid block such as frequently follows acute epidemic cerebrospinal meningitis; (2) for the diagnosis of cord compression, especially spinal cord tumours; (3) for accurate localization of spinal cord tumour following the injection of lipiodol and for røntgenographic studies, and (4) for the localization of sites of hemorrhage.

It is also likely that cisternal puncture may be used successfully as a prophylactic measure to prevent the possibility of spinal subarachnoid block following acute cerebrospinal meningitis.

R. M. S.
ABSTRACTS

[162] Cerebrospinal fluid pressure from the clinical point of view.—J. B. Ayer. Arch. of Neurol. and Psychiat., 1925, xiv, 440.

Ayer places the normal cerebrospinal pressure between 100 and 200 mm. of water. Pressures over 300 are probably always to be explained on a basis of intracranial pathology. These figures are for patients lying on the side with the axis of the spine horizontal and the head in alignment. In the sitting posture lumbar pressure is approximately doubled, the height of pressure depending on the length of the trunk, while at the cisterna magna the pressure is below zero, i.e., is a negative pressure.

No individual parallelism exists between intraspinal pressure, arterial pressure and ocular tension, but on an average a high or a low pressure of one type is associated with a high or a low pressure of the other types.

Combined readings of cerebrospinal pressure are of diagnostic value in the demonstration of block in the fluid pathways. Block in three different loci of the ventriculo-subarachnoid spaces has been demonstrated by this method of double puncture, the location of the punctures depending on the site of the lesion—cisternal and lumbar punctures for spinal cord lesions, double lumbar punctures for cauda equina lesions and ventriculolumbar punctures for cerebellar fossa pathology. The criteria on which block is demonstrated in all three types is the same, namely, the determination that pressure artificially elevated or depressed in one manometer is not transmitted to the other. The agent found of greatest value in raising the pressure is compression of the jugular veins; for reduction of pressure, simple withdrawal of fluid.

Evidence is also accumulating to show that the Queckenstedt test (jugular compression) is of value in the determination of the patency of the lateral sinuses, and, in cases of thrombosis, in indicating which side is obstructed. In complete sinus thrombosis the lumbar pressure is unaffected by jugular compression on the side of the affected sinus or rises only a little, whereas jugular compression on the unaffected side produces an excessive rise, commensurate with the normal reaction observed when both jugular veins are compressed synchronously.

R. M. S.


A series of 392 cases of ventriculography was compiled with the object of determining the following facts:

1. In how many instances has the ventriculogram been of localizing value in the presence of definite neurological evidence as to the situation of the lesion, and in the absence of such symptoms?
2. What percentage of tumours localized by air injection, which were unlocalizable by other methods, could subsequently be removed at operation?
3. In how many instances were the x-ray films incorrectly interpreted and the tumours not found in the suspected area?
4. In how many cases due to errors in technique could the ventricle not be tapped, or if tapped, was insufficient fluid withdrawn to justify the in-
sufflation of air, or, after air was injected, could the radiogram not be interpreted?

5. How many deaths resulted directly from ventriculography?

A consideration of the statistics available showed that positive information as to the position of the tumours was obtained in roughly 80 per cent. of cases, and in 30 per cent. of those localized ventriculography gave definite facts as to the location of the neoplasm when all other evidence was lacking. Surgical intervention was possible in forty-four cases, or nearly 50 per cent.

The error in technique was high, but the number of operations needlessly performed owing to misinterpretations of the air shadows was surprisingly low—less than 1 per cent.

The mortality rate was also high, more than 8 per cent., but against this must be put the 100 per cent. mortality rate in unlocalized and unextirpated intracranial neoplasms.

The alternative method of replacing the ventricular fluid by air introduced at the fourth lumbar interspace (encephalography) is much more dangerous and is absolutely contra-indicated if increased cranial tension exists.

R. M. S.


In the writer's experience complete regeneration has followed suture of almost every peripheral nerve of the extremities, the return of motor power being the earliest and most essential manifestation of complete regeneration—an observation in striking contrast to the generally accepted view that sensory function is manifested frequently before motor function. The causes of failure are considered. The differentiation between a partial lesion and a complete lesion is attended by fallacies of supplementary motor movements, irregularities in cutaneous sensory distribution, and the inconsistencies of too refined electrical reactions. Operation is indicated if, after three months' nutritional care of the muscle, repeated neurological examinations fail to reveal the signs of regeneration. Resection and suture are indicated in causalgic lesions. The factors which tend to impede or obstruct the process of regeneration are (1) improper care of the affected muscle, and (2) diversion of nerve fibrils into incompatible end-organs, the latter accounting for the prolonged and often incomplete restoration of function seen in mixed nerves. The paper is confined to generalizations and lacks details of actual experiments.

Lewis Yealland.

[165] Polyneuritis due to obstetric injury, toxæmia of pregnancy and puerperal infection (De la polyévríte traumathique obstétricale, toxî-gravidique et infecteuse puerpérâle).—F. Skubiszewski. Rev. neurol., 1925, xli, 370.

The type of neuritis described consists of scattered peripheral nerve palsies rather than a symmetrical ' polyneuritis ' in the ordinarily accepted use of the term. The lumbosacral trunks are not uncommonly injured during childbirth. Anatomical reasons are put forward to explain why in these cases
the external popliteal is chiefly, sometimes solely, involved. Possibly even in these cases there may be a toxic factor as well.

In two instances which are quoted the unilateral lower limb palsy was associated with lesions in one of the upper limbs—in one case an ulnar, in the other a combined ulnar and musculospiral. These latter could not have been due to injury. There are also cases in which periuterine post-partum infection has involved the lumbosacral plexus either by direct spread or through the perineural lymphatics.

C. P. S.

**PROGNOSIS AND TREATMENT.**


For purposes of treatment cases of insomnia are divided into two groups, (1) the secondary; (2) the primary.

In secondary insomnias there is no objection to the use of hypnotics from the fear of establishing a habit, the promotion of sleep being essential for the maintenance of strength and powers of resistance.

Primary insomnia is often kept up by the autosuggested dread (death, insanity) of the results of not sleeping.

The possibility of a primary insomnia becoming a habit is a real danger, but the fear that a rational use of hypnotics may lead to a habit has been overstated, though the task of weaning a patient from his hypnotic may be a difficult one.

Careful attention to matters of detail is necessary in the treatment of primary insomnia, including:

1. Removal of sources of psychic irritation.
2. Removal of the autosuggested dread of not sleeping, and cultivation of pleasant thoughts during the process of falling to sleep.
3. Avoidance of strenuous mental work before going to bed; but suitable reading in bed, etc., may be beneficial. Wakefulness during the night may be dealt with by turning on the light for a short time.
4. Correction of any disturbance of functions; e.g., in cases of high blood pressure by administration of calomel and salines; by curtailment of diet; and even by recourse to bleeding.
5. Investigation of any source of peripheral irritation (pain, cough, dyspnœa, flatulence, palpitation, cold feet, etc.).
6. Consideration of 'extrinsic factors,' such as climate, temperature, ventilation, etc., of bedroom, arrangement of bed, etc.

The factor of habit should be borne in mind in dealing with all cases of sleeplessness.

In the insomnias associated with psychotic conditions, the use of powerful hypnotics is growing into disfavour. Frequent feeding with liquid diets, frequent bathing to promote skin elimination, correction of constipation, administration of alkalis, sponging, hot packs, and, if possible, prolonged baths are of use.

Favourable results have been reported by the use of the drug 'somnifen'