was no difficulty in gaining admittance to factories. With regard to workers in lead, he had followed the practice of removing those who were apparently "run down" or in poor health to another part of the works. In this way loss of work and of wages had been successfully avoided.

Professor COLLIS said that the psychology of industrial unrest appeared to bear a definite relation to industrial mortality. Thus it was remarkable that in the recent strikes the strike ballots in the seven great coalfields were directly related to the mortality from accidents. The greatest numbers in favour of a strike were found in the areas having the greatest mortality, and the parallelism was almost exact. Laziness might well be psychological, but due to pathological causes.

Dr. F. E. WYNNE (M.O.H. Sheffield) moved, and Dr. KERR (M.O.H. Newcastle-on-Tyne) seconded, the following resolution, which was carried unanimously:

That it be a recommendation to the Council of the Association to endeavour to obtain increased powers for local authorities with respect to houses let in lodgings.

LUMINAL CONTRASTED WITH BROMIDE IN EPILEPSY.

BY

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FOR EPILEPSY AND NERVOUS DISEASES.

THE therapeutic value of luminal in the treatment of epilepsy has been recognized by a large number of American and German writers. The following observations record an effort to establish the relative efficacy of the luminal and the bromide treatment of epilepsy.

In any attempt to establish the value of a form of treatment which cannot pretend to rank as a specific cure certain difficulties are encountered necessitating the exercise of great caution. Every neurologist of experience is aware of the astonishing manner in which epilepsy undergoes spontaneous remissions and exacerbations. This difficulty necessitates the observation of a very large number of cases for a lengthy period before the new treatment is commenced, and the continuance of the experimental treatment for a considerable time. All cases due to traumatic or infective lesions must be rejected in order to avoid complication of the results by possible variations in the extent or intensity of the lesion.

The total number of cases that have been observed for a period of not less than eighteen months is 125. The patients were treated at the Hospital for Paralysis and Epilepsy, at St. George's Hospital, and at the Maudsley Hospital. All of them had been treated by bromides for periods extending from fourteen years to a minimum of six months. Since cases occur in which the mere suspension of bromide treatment may be followed by a period of improvement, in every case bromide treatment was suspended for a short period and the effects noted. In only one case was there a period of remission following suspension of the bromide treatment, and this remission lasted for sixteen days. Two other cases were unaffected by cessation of the bromides, and all the others showed signs of an increased severity of the malady. This sufficiently disposes of the possibility that any amelioration with luminal treatment might be referable to the mere suspension of bromides. Without much larger statistics than I have been able to gather, it is difficult to make any pronouncement on this alleged improvement of epilepsy on the cessation of active treatment, but its rarity is not incompatible with the view that such cases are merely those in which a spontaneous period of remission happens to have coincided with the disuse of bromides.

As to the intensity of the bromide treatment, with which the luminal treatment is compared, I will confine myself to the general statement that in every case such doses of bromide had been exhibited as appeared to reduce the fits to a minimum without causing any marked general disturbance.

When the results obtained by luminal treatment were collated, it at once became evident that the efficacy of the luminal varied greatly in cases afflicted with different

degrees of severity. In our complete ignorance of the pathology of epilepsy it is impossible to hazard any opinion as to whether or not the same pathological process is at the root of epileptic crises occurring daily and those occurring at infrequent intervals, either in bouts or singly; but the effect of luminal on such different types of cases is so different that I have thought it expedient to group my cases empirically into classes which are determined by the frequency of the attacks. By this means a far more accurate picture of the efficacy of the drug is obtained than by the consideration of the unclassified results. It is necessary to add that no selective action on the different types of epileptic discharge could be verified.

I have then divided my cases into the following groups: Those suffering from diurnal fits; those suffering from fits more frequently than four times in a month of thirty days; those with fits occurring between once and four times in a month; those with fits occurring less than once a month; those with fits occurring in bouts of several at a time at intervals of not less than twenty-one days; and lastly, a small group of cases of traumatic epilepsy in which the lesion was of several years' standing. All the cases were carefully examined to exclude syphilitic origin, and if any cases with either a luetic, vascular, or traumatic pathogenesis have been unwittingly recorded the number must be practically negligible.

CLASS A.—Diurnal Fits.

The results of treatment of cases in this class may be summarized as follows:

No.	Age.	Period during which Fits occurred Daily whilst under Bromides.	Average Number of Fits during Past Three Months after not Less than a Year's Luminal Treatment.
1	36	Thirteen years	One in forty-five days.
2	42	Fourteen years	One in thirty-seven days.
3	19	Four years	One in seven days.
4	27	Eight years	One in ten days.
5	18	Two years	One in thirty-six days.
6	20	Six months	One in twenty-one days.
7	7	Three years	One in seven days.
8	10	Eighteen months	Daily; condition unchanged.
9	4	Ten months	Condition became worse under luminal.*

*After three months' trial put on bromide again; fits gradually diminished, now one in twenty-eight days.

These cases show such a startling superiority of luminal over bromide treatment that they merit some further comment. The first two cases are perhaps the most striking.

Case 1.

A woman who had suffered from hereditary epilepsy since her sixteenth year. I first saw her when a registrar at St. George's over fourteen years ago, and since then she has been under continual observation as an out-patient. Under full doses of bromide the fits occurred regularly once a day. On three occasions I endeavoured to stop the bromide treatment, but on each occasion the fits increased in frequency and severity to an alarming extent. During the past few years the patient has become increasingly depressed and stupid, and the face has been covered with acne. She was given luminal sodium in two-grain doses in the morning and four grains at night. From the second day after beginning luminal treatment the fits ceased, and for the ensuing ten weeks she was free from fits. She became much brighter and her general condition, both mental and physical, showed striking improvement. After ten weeks she had a series of fits on three successive days, and then remained free for three weeks. Her fits after eighteen months' treatment now average one in forty-five days, and can be said to be slight in nature.

Case 2.

A man who had been under my observation since 1907. Like the preceding case, he had daily fits whilst under bromide, and became very much worse when the drug was intermitted. His fits were, however, slighter than those of the first case, and he showed little trace of the effects of bromides. Treated with two grains of luminal thrice daily the fits ceased at once, and he did not again have an attack till two months later, when he had two fits in succession. His present average is one in thirty-seven days.

Both of these cases are liable to frequent attacks of *petit mal*, but they assure me that these attacks are not more frequent than they were under the bromide treatment. Both patients say that they feel infinitely better and brighter than when taking bromides. Cases 3, 4, 5 and 6 were, after some months' treatment with luminal, placed on bromide treatment for a fortnight. In all four cases the number of fits increased within two days, and I had to yield to their solicitations to discontinue the experiment. Cases 8 and 9 are two children, both mentally defective. Case 8 showed no improvement when treated with luminal, whilst Case 9 became decidedly worse. Some weeks after the luminal treatment was abandoned, and this child again put on bromides, she began to improve, and during the past three months has not had more than one fit a month.

CLASS B.—Cases with more than Four Fits a Month.

The results of treatment of cases in this class are recorded in the following table. Of the 51 cases, 4 were no better with luminal than with bromides, as evidenced by the number of fits, and 5 cases had an increased number of fits.

Table showing Average Incidence of Fits during Preceding Nine Months under Bromide Treatment, and during the last Three Months of a Year of Luminal Treatment.

No. of Cases.	Bromide Treatment.	Luminal Treatment.
3	15 to 17 fits a month—average 15	Average 3
2	10 to 15 " " " 12.5	" 7.5
16	7 to 10 " " " 9	" 6
30	4 to 7 " " " 5.5	" 4.5

CLASS C.—Fits Occurring One to Four Times a Month.

There were 29 cases in this class, with an average incidence of three fits a month during nine months under bromide treatment, and of 1.2 during the last three months of a year of luminal treatment. Eight of these cases showed practically no improvement, and one was distinctly worse when treated with luminal.

CLASS D.—Fits Occurring less often than One per Month.

There were 15 cases in this class. The average incidence of fits during nine months under bromide treatment was 0.8 a month, and during the last three months of a year of luminal treatment 0.9. Seven cases showed no improvement, and two had fits with slightly greater frequency.

CLASS E.—Fits Occurring in Bouts of Several in Succession not oftener than Once a Month.

Under this heading there were 13 cases. The number of fits in succession during nine months under bromide treatment averaged 4, and during three months under luminal treatment 5. Six cases showed no improvement as to frequency of fits; 3 were somewhat worse. The absolute numbers of fits occurring during a bout is seldom very reliable. The best interpretation of these results would probably be to consider that luminal showed no advantage over bromide treatment. Eight cases of traumatic epilepsy in which the lesion had occurred not less than five years previously were treated with luminal. Of these cases, 7 showed definite improvement under luminal, whilst one patient who suffered from fits occurring in bouts was unaffected.

A study of the results here recorded shows that 36 cases out of a total of 125 were either not improved or deteriorated under luminal treatment, whilst the remainder did better under luminal than under bromide. The cases most beneficially affected by luminal were those with fits occurring at frequent intervals, and the cases least affected were those whose fits occurred in bouts at considerable intervals of time.

The interpretation of these results is a matter of some difficulty; to make the experiment complete it would be necessary to know the frequency with which the fits would have occurred when the patients were observed for lengthy periods in an untreated condition, and this for

obvious reasons was impossible. I hesitate to believe that luminal exercises a selective action on those forms of epilepsy in which the fits occur with the greatest frequency; it appears to be more probable that a class of epileptics exists who are more refractory to bromide treatment than others, such a class would obviously show the greatest number of fits when treated by bromides, at the same time these patients are not less susceptible to luminal than their fellows, and consequently it is with these cases that the drug shows its most marked effect.

The doses of luminal employed have rarely exceeded 6 grains a day of the sodium salt.* Using such small doses I have hitherto been unsuccessful in determining to what degree, if any, it undergoes change in the body. The only method so far available of recovering it from the urine is to shake it out with ether, and when the total weight recoverable in a twenty-four hours' specimen of urine does not exceed 6 grains it is futile to pronounce on the possible destruction of small fractions in the body. The sodium salt was administered on all occasions on account of its solubility, but there is little doubt that in the acid stomach it is converted into the insoluble acid.

It is the rapidity with which the insoluble acid is passed on to the duodenum and its relative dilution with the gastric contents that may, by varying the rapidity of absorption, be responsible for the occasional appearance of slight toxic symptoms such as giddiness and drowsiness. The earliest period after ingestion at which I have been able to demonstrate its presence in the urine is three hours.

The drug is, as a rule, well tolerated, and most patients found that they were far brighter and more cheerful after a change to luminal from bromide treatment. In twelve cases, however, the patients complained of giddiness and drowsiness. Five of these patients showed definite affection of the gait, reeling slightly as if under the influence of alcohol. By diminishing the dose of luminal I was able to secure eventual toleration in all but four patients, who complained so persistently of giddiness that the luminal treatment was suspended. Urticarial rashes appeared in two cases at the onset of treatment, but disappeared when it had been continued for a few days.

There has in no case been any signs of the formation of a drug habit, and suspension of the treatment has never given rise to any disturbance. There is a tendency in all cases for the number of fits to increase slightly after the first two months of treatment. I have refrained from increasing the strength of the dose given, as I wished to determine whether this tolerance was a progressively increasing factor, but I found little evidence of this. In a series of 20 cases the average number of fits per month after a month's treatment was 21; after two months, 30; after four months, 36; and after ten months, 32.

It is to be regretted that no English firm has been willing to undertake the manufacture of this important drug, which is at present only obtainable from Germany. The more toxic compound known as dial, which I have endeavoured to substitute for it, is only manufactured in the form of the insoluble acid salt, and the giving of boxes of pellets of a poisonous hypnotic to epileptic out-patients is a measure of doubtful expediency.

RECURRING DISLOCATION OF THE SHOULDER-JOINT.

BY
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DISLOCATION of the head of the humerus from the glenoid cavity of the scapula occurs from congenital, pathological, and traumatic influences; with the two former categories we are not here concerned.

The initial dislocation from traumatism is usually very painful, not so much from the actual displacement as from the reflex muscular contractions, which occur in spasms of great severity, driving the head of the humerus against sensitive structures in the proximity. Once the reposition has been effected, prolonged abstention from

* Luminal is phenyl-ethyl-barbituric acid, a modification of veronal, an ethyl group being replaced by a phenyl radical. It is almost insoluble in water. The sodium salt is readily soluble.