Cerebrospinal meningitis often occurs in epidemic form, but is more usually sporadic. Underwood, reviewing a recent outbreak, states that it is very widespread, and there is no county in England and Wales which has not had at least one case. This statement is important, as it affirms that cases can crop up in any district without other active cases being present. This point is borne out in our cases, for, so far as is known up to date, no others had occurred previously; or have arisen since, in the area from which each patient came. Medical officers in charge of the health of workers in large industrial concerns or war undertakings of any sort have a special responsibility in this matter, for it is among such people that the disease is apt to occur, and quite often without any warning. So in any case where sudden mental symptoms develop the possibility of cerebrospinal meningitis should be kept in mind.

Mental Hospitals and Cases of Meningitis

It is the duty of mental hospitals to receive patients suffering from confused mental states as well as from any other form of mental illness, whether the condition be due to known, unknown, or overlooked causes. We may, therefore, draw attention to what is now regarded as the most satisfactory procedure for the admission of such cases. The recovery rate for this type of acute mental illness is high. If the mental state is directly due to an organic illness, and the latter is curable, the mental state will clear up in most instances on recovery from the primary illness. But even where no definite cause can be found the outlook is reasonably good. So there is a distinct hope that these types of case will recover within six months or, at most, a year. Previous to the Mental Treatment Act, 1930, the only means of admitting these patients was by some form of certification with a magistrate's order. This was realized to be a hardship to such recoverable cases, and thus the procedure of admission as a temporary patient was introduced. Here no magistrate's order is needed. All that is required is:

1. A recommendation from each of two medical practitioners, one of whom must be approved by the Board of Control for the purpose of making recommendations. There are such approved doctors in every district. These recommend that the patient be received into the mental hospital for a period not longer than six months, stating that he is likely to benefit by such a period of treatment. Some particulars of the patient's mental state are also required.

2. An application made by a relative or a relieving officer.

3. Statement of particulars as to name, age, etc.

At the end of the six months, and should the patient not have yet recovered, a three-months extension can be authorized by the Board of Control, with a further three months if necessary. If recovery has not taken place at the end of twelve months the patient will either have to be discharged, or be certified in the ordinary way if further detention is necessary. Occasionally it is found that the patient is willing to remain on as a voluntary patient. It may be noted that patients best suited to be dealt with as temporary inmates are those who, through disturbance of their mental functions, are not able to come to decisions themselves: they lack volition; they are confused. Once the mental faculties are restored the patient can then express his own desires; he does not need to be detained any longer. If this method of admission is used in all cases of acute confusion, then even should the case subsequently turn out to be cerebrospinal fever or any other organic illness with mental symptoms there is the satisfaction, on recovery of the patient, that certification has not been resorted to.

Once again these cases show the satisfactory results obtained by the use of sulphapyridine in cerebrospinal

meningitis. Previously this disease was a source of worry as to an ultimate recovery. Before serum treatment was employed the mortality rate was as high as 70 to 80%; now with sulphapyridine, as seen in 200 cases treated by Harries (1940) with this drug, the mortality rate was 11%, the cases being of all degrees of severity. Cases I and III were typical cases, with complete recovery. The difference in amounts of the drug required in the two cases was most probably due to treatment having started earlier in Case III than in Case I. Case II was too far advanced on admission, and the mixed infection made the outlook hopeless. There were no complications that could be attributed to the sulphapyridine medication.

Summary

Three cases have been described which were sent as certified patients to a mental hospital with acute mental symptoms of confusion and excitement. The patients were subsequently found to be suffering from cerebrospinal meningitis.

It is recommended that medical officers in charge of the health of workers who are collected together in large numbers keep in mind the possibility of cerebrospinal meningitis being the cause when sudden acute mental symptoms arise in any of the personnel, especially when the symptoms take the form of confusion, restlessness, and excitement.

All cases of acute confusional psychosis should be sent to the mental hospital as temporary patients only.

We wish to express our thanks to Dr. Sidney Davies, medical superintendent, for his helpful criticism in the preparation of this paper and for permission to publish the cases.

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EXPERIENCE WITH THE WILSON AND BLAIR MEDIUM FOR B. DYSENTERIAE (FLEXNER)

BY

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At the time of publication by Wilson and Blair (1941) of their new media for the Flexner group an outbreak of this type of dysentery was in progress in a Yorkshire town. One of the new media was immediately put on trial, with the results here stated. Though small, the figures are worth recording because opportunities to test such a medium under working conditions in this country are few and because the results were unequivocal.

The material was from cases admitted from a general hospital, in which infection first appeared in a children's ward and subsequently spread to a female ward. There were several cases among the nursing staff and several positive stools among clinically uninfected contacts. A few cases were admitted from the general population and from a second hospital. It is probable that the infection was widespread in the town, cases being missed owing to their mildness. This mildness was a remarkable feature of the outbreak. Initially the cases showed typical dysenteric stools, liquid, with much bloody mucus and often no faecal material. Constitutional disturbance was, however, not pronounced, and many cases had clinically cleared up in thirty-six hours. In the first thirty cases there was only one death—that of a senile patient.

All strains of the organism gave acid in glucose and mannite; no change in lactose; indole+. A few strains were inoculated into dulcete, but they produced no change. All agglutinated strongly with Flexner polyvalent serum I

(Oxford Standards Laboratory)—that is, they were type V, W, X, or Z—but pressure of work prevented more detailed identification.

The MacConkey agar in use at the laboratory gave a high proportion of positive plates in early cases, when a fragment of blood-stained mucus was plated after repeated washing; but results in convalescents, though occasionally positive, were evidently unreliable. The first of the media described by Wilson and Blair (the tellurite-iron citrate-neutral red medium) was brought into use within a few days of the publication of their paper, one plate of Wilson and Blair's medium and one of MacConkey's agar being used for each specimen. The results are shown in the table.

Table of Results with Blair and Wilson's Medium and those with MacConkey's Agar

Case No.	Acute or Convalescent	No. of Flexner Colonies		Remarks
		MacConkey Plate	Wilson-Blair Plate	
240	A	1	1	
246	A	+	+	
259	C	Neg.	+	
262	C	20	Uncountable	Pure culture of Flexner on Wilson-Blair plate
267	A	20	Uncountable	
271	C	10	10	
272	C	2	10	
275	A	Neg.	Uncountable	Pure culture of Flexner on Wilson-Blair plate
284	A	Uncountable	"	
285	A	Uncountable	"	Little to choose between the two media
298	C	Neg.	"	
300	C	"	"	
341	C	9	Neg.	
342	C	1	100	
343	C	1	100	
353	C	Neg.	30	
372	C	Neg.	Uncountable	Pure culture of Flexner on Wilson-Blair plate
383	C	"	30	" " "
384	C	"	100	" " "
392	C	"	10	" " "

Positive on both media : 8
 " " Wilson and Blair's medium only : 10
 " " MacConkey agar only : 2
 Total positive on Wilson and Blair's medium : 18 (90%)
 " " " MacConkey's agar : 10 (50%)

It will be noted that of the 20 consecutive stools from which Flexner dysentery bacilli were isolated 8 were positive on both media, 2 on MacConkey agar only, and 10 on the Wilson-Blair medium only—i.e., 50% of the positive stools would have been missed had only MacConkey's agar been used. Of 46 consecutive negative stools, the Wilson-Blair plate was in one case spoilt; 22 of the remaining 45 were either sterile or showed only minute colonies of *Streptococcus faecalis*. The corresponding MacConkey plates often showed non-lactose-fermenting colonies which required subculture and inoculation of sugars for identification. Thus the Wilson-Blair medium will sometimes have an advantage of two or three days in speed of reporting a negative result, a useful point when many convalescents are being dealt with. On the other hand, this high selectivity must be kept in mind, lest other pathogens be missed, as the following shows:

After some 20 consecutive cases of Flexner dysentery had occurred the stools of certain ward contacts (clinically uninfected) were examined. From one of these Sonne dysentery bacilli were isolated; this patient was presumably a carrier. Later a single case of Sonne dysentery occurred in the same ward. The Wilson-Blair plates from both these patients were of course negative.

From one batch of medium both bile salt and lactose were omitted in error. This batch appeared to give equally good results, but would probably prove unreliable on more extended trial. As Wilson and Blair point out, the medium, after the addition of tellurite, is very sensitive to heat. Neglect of this point leads to loss of selectivity.

The weight of inoculum which the medium will stand is surprising. Apart from *Str. faecalis*, which causes no trouble, and an occasional strain of *B. coli*, little except Flexner's dysentery bacilli will grow upon the medium. Using one or two large loopfuls of heavy faecal suspension or preferably of washed mucus, 27 out of 65 consecutive plates showed no growth of unwanted organisms, the plates being either pure cultures of Flexner's dysentery bacilli or sterile (neglecting the minute colonies of *Str. faecalis*). The growth of Flexner dysentery bacilli is neither inhibited nor enhanced, since subcultures on Wilson and Blair's medium and on MacConkey's agar give equal growth. The heavier growth of Flexner dysentery bacilli on the primary plates is due entirely to the heavy inoculum possible on this medium.

Summary

One of the new media described by Wilson and Blair for the Flexner group has been used in an outbreak of this type of dysentery. The results confirm the value of this medium.

My thanks are due to Dr. J. M. Gibson for permission to publish these notes, and to Dr. Honoria Twomey for much practical help.

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CAROTID CAVERNOUS ANEURYSM WITH FISTULA

BY

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The following case of carotid cavernous aneurysm may be of interest. I saw the patient at the ophthalmic department of a county hospital and later with my colleague Mr. Rupert Parry at Cardiff Royal Infirmary; she was subsequently transferred from the ophthalmic department to the surgical unit under Prof. Lambert Rogers.

Report of Case

History.—Ten days before I saw her in November, 1937, she was awakened by a violent fit of sneezing. Immediately afterwards there was a great strain over her right eye and a hissing noise in the right side of her head which synchronized with the pulse. Her vision gradually depreciated. Two days after sneezing she developed diplopia; her vision with a +1 D sphere was: right 6/24, left 6/18. The pupil on the right side reacted sluggishly and there was paresis of the right external rectus; the fundi were normal. There was a history of antispecific treatment; her Wassermann and Khan reactions were negative, and the systolic blood pressure 190 mm. Radiographs of the skull were negative with the exception of deep meningeal grooves. At Christmas-time she developed total ophthalmoplegia in the right eye, with marked exophthalmos, ptosis, and chemosis; her vision was reduced to 6/60 in this eye. She was given potassium iodide internally, and towards the middle of January, 1938, the exophthalmos diminished somewhat; there were slight movements in the upper lid, and she could look up and in to some extent; the chemosis had lessened, but the large conjunctival veins were very varicose and engorged. Towards the end of January there was ptosis of the left eye, slight chemosis, and diminished eye movements; vision was 6/36 with correction, the fundus normal, and the field of vision full. Total ophthalmoplegia soon followed, with marked exophthalmos and chemosis. There was a recurrence of similar signs in the right eye, but the congestion in the conjunctival veins was more pronounced. There was some surgical emphysema on the right side of the forehead, and the noise in the head seemed to be over the right eye. When a stethoscope was applied to the skull a loud whirring bruit could be heard beneath the right side of the