mechanism here involved is different from that concerned with cyanocobalamin. One would, therefore, not expect a different action of fluoroacetate in each case. If this supposition is correct, the intestinal absorption of cyanocobalamin would first involve attachment to the intestine by means of intrinsic factor[6], followed by an active process within the intestinal cell bringing about conversion to the coenzyme, which in turn is followed by release to the blood stream.

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Effect of Experimental Allergic Encephalomyelitis Serum on Fatty Acid Output of Brain Slices

THE injection of preparations of spinal cord into certain animals has been shown to cause the development of an allergic encephalomyelitis[1,2]. We have been examining the effects of the addition of serum from guinea pigs suffering from experimental allergic encephalomyelitis (EAE) serum on the metabolic activity of slices of rat brain tissue, as measured by *in vitro* techniques. Other workers have shown that serum from affected animals can cause tissue breakdown in tissue cultures[3,4], and the results of our experiments, in which we measure net free fatty acid output of brain slices incubated in a balanced medium are consistent with the hypothesis that EAE serum causes a degenerative change.

Spinal cord (about 0·5 g) from normal guinea pigs was homogenized in 3 c.c. Freund's adjuvant and the homogenate was injected intradermally at 4–6 sites on the back of healthy guinea pigs. About 0·1 ml. was injected at each site. After the animals developed the characteristic paralysis, they were bled. At the same time, samples of blood from normal guinea pigs were obtained. The blood was allowed to clot and the serum which was obtained was stored in the refrigerator until used.

Cerebral tissues were obtained from normal Wistar rats of about 150 g weight, with a Stadie–Riggs slicer. Two slices were obtained, the 'first slice' being the outer (cortical) layer, and the 'second slice' was of immediately underlying tissue. Each slice was divided into two halves, and one half was incubated in 2·5 ml. of a modified Gey–Gey medium[5], which contained 300 mg per cent glucose, 2·0 per cent bovine serum albumin and 0·4 ml. of normal guinea pig serum. The other half was incubated in a similar medium, except that EAE serum was used instead of normal guinea pig serum. Incubations were done for 3 h in a 25-ml. Erlenmeyer flask in a Dubnoff shaker. At the end of this time, duplicate 1 ml. aliquots of the medium were removed for extraction and determination of free fatty acids according to the procedure of Dole[6]. Controls, without tissue, were similarly run in order to allow a measurement of fatty acid output from the tissues. In many experiments, another sample of the medium was used for a determination of glucose concentration with an Autoanalyser, so that measurements of glucose uptakes could be obtained.

The results of the determination of net fatty acid output by the cerebral tissues are shown in Table 1. There seems to be little difference between the 'first' slice and the 'second' slice, but the presence of the EAE serum has caused an increase in free fatty acid output in both.

Table 1. FATTY ACID OUTPUT OF CEREBRAL SLICES
(μequiv./g wet weight)

First slice		Second slice		
Normal serum	EAE serum	Normal serum	EAE serum	
7·8	10·0	9·2	11·7	$N = 18$
Normal globulin	EAE globulin	Normal globulin	EAE globulin	
9·4	11·6	7·0	9·7	$N = 4$

Analysis of variance

Source of variation	d.f.	Mean square	F	P
Between animals	21	24·63	2·00	0·05
Between slices	1	8·46	< 1	not significant
Between sera	1	106·26	8·64	0·01
Interaction (sera × slices)	1	0·01	< 1	not significant
Error	63	12·30		

A comparison of the effects of globulin and sera showed no significant difference in the actions of these two additives to the incubation media.

For some of the sera, a globulin fraction was prepared by ammonium sulphate precipitation followed by dialysis, and this globulin fraction, dissolved in a volume of medium equal to the volume of the original serum, gave similar results to the unfractionated serum. This suggests that an antibody may be involved. A few tests in which the EAE serum and the normal serum were incubated with epididymal fat pad tissue indicated that there was no difference in the effects of the two types of sera on this tissue, so there is probably some degree of tissue specificity.

In a very rough way, net fatty acid output was accompanied by an increased glucose uptake; but the correlation was so poor that there was no statistically significant difference between glucose uptake values of tissues exposed to EAE serum, compared with tissues exposed to normal serum.

The increased net free fatty acid output of the brain slices exposed to EAE serum is consistent with the picture of myelin breakdown observed by Bornstein and Appel[3] and Pette and Pette[4]. Presumably some of the lipid structures in the myelin are breaking down to give the fatty acids which appear in the media. Occasionally we have observed a decrease in fatty acid in the medium, with both control sera and EAE sera, and this probably reflects the dynamic state which no doubt exists. Further work is planned on investigations of turnover of lipid constituents under the influence of the EAE serum.

The nature of the agent responsible for this effect is not known. It is attractive to think of it as an antibody; but this likely hypothesis is yet unproved. The possibility of an enzyme has not yet been completely ruled out.

Many EAE sera have a high fat content; but the free fatty acid content of the flasks containing the EAE sera is very close to that of the flasks containing the normal sera (mean values are 1·3 and 1·1 m.equiv./l., respectively), so it is unlikely that the difference of fatty acid level *per se* contributes to this observed difference.

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Ciliastatic Action of Smoke from Filter-tipped and Non-tipped Cigarettes

THE ciliastatic effect of tobacco smoke has been examined by several workers. It is known that mammalian cilia stop beating after a relatively short exposure. Although attempts have been made to fractionate tobacco smoke in order to find out which fraction is most harmful[1], little work has been done to compare the effects of different kinds of smoke.

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