

Professor Jennett and Dr Strang appeal for the increased use of skull radiographs in the hope of detecting otherwise silent skull fractures. This would further decrease the already very low positive yield from this investigation. We feel that the blanket use of skull radiographs in cases of skull trauma should be replaced by a more discriminating request for this examination.

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METHYL MERCURY IN BLOOD OF DENTISTS

SIR,—The biological transformation of inorganic mercurials into organic compounds, which are much more toxic, has been studied by many workers since Minamata disease came to notice some 25 years ago. The water of Minamata Bay was contaminated by methyl mercury in factory effluent; there were many illnesses, some fatal, as the result of eating fish caught in the bay. Subsequent reports of the presence of mercury in tuna fish, caught in deep waters not thought to be polluted, generated public alarm, but it was afterwards found that methyl mercury occurs naturally in deep-sea fish. Inorganic mercury, released from the earth by volcanic and industrial activity, is washed away by rain and reaches the sea bed where it is converted by bacteria into methyl and dimethyl mercury. These compounds rise to the surface (some being ingested by fish) and are broken down in the atmosphere, yielding metallic mercury which is recycled. The role of methylcobalamin in the methylation of mercury in biological systems has been demonstrated *in vitro*.¹

	Dentists (N=11)	Controls (N=17)
Total mercury (ng/g dry weight)		
Range	67–518	100–154
Mean	227	129
Median	213	130
Methyl mercury (ng/g dry weight)		
Range	8.5–69.5	1.9–13.7
Mean	27.0	5.7
Median	24.7	4.7
Methyl mercury (% of total)		
Range	4.7–50.4	1.2–9.0
Mean	14.8	4.5
Median	12.1	3.5

Magnaval et al.,² reviewing mercury hazards in dentists, measured methyl mercury in the blood of four dentists and suggested that the levels were higher than in a control group, though the difference was not statistically significant. We now report experiments showing that mercury vapour inhaled by dentists is partially converted to methyl mercury in the body.

Blood-samples (10 ml) were obtained from eleven dentists working in the conservation department of a hospital and from seventeen people not occupationally exposed to mercury. 2 ml heparinised whole blood was freeze dried and its total mercury content measured by neutron-activation analysis. Methyl mercury was estimated in 4 ml samples by gas-liquid chromatography.

The results are summarised in the table. The differences between the dentists and the controls are highly significant ($P < 0.005$, Wilcoxon rank-sum test) for total mercury, methyl mercury, and the ratio methyl/total mercury.

These observations suggest that chronic mercurialism in dentists and others exposed to mercury vapour may be attributable to methyl mercury. Many of the symptoms of chronic

poisoning by inorganic mercury, including depression, irritability, failure of memory and concentration, and hand tremor, are found also in victims of methyl mercury poisoning. Methyl mercury is fat-soluble and has a particular affinity for brain tissue.

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SPERM-ANTIBODY TESTING IN INFERTILITY

SIR,—The article on hostility testing by Morgan et al.¹ is interesting since the test provides a useful screen for immunological causes of infertility. Indeed we agree with Stone and Shulman² that sperm-antibody tests should be included more frequently in the panel of diagnostic tests on an infertile couple.

In our laboratory, when testing for sperm isoantibodies in infertile women, we usually use semen from normal donors as antigen, as do most laboratories. However, when we test with sperm from the partner and from donors, we sometimes get discordant results.

RESULTS

Case	Sperm from donors		Sperm from partner	
	Blood serum	Cervical mucus	Blood serum	Cervical mucus
1	1:64	neg	1:64	neg
2	1:64	neg	1:128	neg
3	neg	1:128	neg	1:128
4	neg	1:32	1:64	1:64
5–19	neg	neg	neg	neg
20	neg	neg	1:64	neg
21	neg	neg	1:32	neg
22	neg	neg	1:256	neg
23	neg	neg	1:64	neg
24	neg	neg	neg	1:128
25	neg	neg	neg	1:64
26	neg	neg	1:32	1:128
27	neg	neg	1:64	1:512
28	neg	neg	1:64	1:32
29	neg	neg	1:64	1:16
30	1:16	neg	neg	neg

To explore this discordance we tested the blood serum and cervical mucus of thirty infertile women with, as antigen, sperm from the partner and a donor pool. Patients were selected on the following criteria: (1) they had had so-called idiopathic infertility for at least 2 years; the husband had normal semen and no antisperm autoantibody (agglutinating, immobilising, cytotoxic) in blood serum or seminal plasma; and (2) consistently poor postcoital test, repeated at least three times. Donors also had normal semen and were negative in antisperm autoantibody tests. Furthermore, to avoid false positivity or negativity, all samples were tested with normal control serum and serum previously demonstrated to be positive. The gelatin agglutination method and capillary method were used, with the precautions emphasised by Shulman.³

In four cases (13%) tests were positive with both partner's

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2. Stone, M. L., Shulman, S. *ibid.* 1977, **ii**, 663.

3. Shulman, S. *Reproduction and Antibody Response*. C.R.C. Press, 1975.