each sample was tested in duplicate.

A limited study of the within-batch precision of the assay was carried out. Using a sample containing 2,3-DPG at a level of 2·36 μmol/cm³ for eight analyses, the range of values was 2·31 to 2·39 μmol/cm³, with a standard deviation (SD) of 0·04 μmol/cm³ and a coefficient of variation (CV) of 2%. These figures are in keeping with published data.[4]

Haemoglobin levels were measured by means of a Coulter Counter (model S).

RESULTS AND DISCUSSION

The results of the study are presented in the Table. It can be seen that in these subjects no significant diurnal variation was observed. We had anticipated that the haemodilution which occurs in subjects whilst in the supine position[6] might affect 2,3-DPG concentrations if expressed in terms of μmol/cm³ of whole blood; however, such haemodilution was not demonstrated in these subjects—Hb concentrations in the samples taken at 08.00 and 00.00 hours were very similar.

According to Hagan *et al*,[6] haemoconcentration is associated with movement to a standing position, and stability is not achieved for 20 min. With this in mind, our volunteers presented themselves for venepuncture immediately on rising at 08.00, but we still failed to demonstrate haemodilution in this group of subjects.

Concentrations of 2,3-DPG appeared to vary slightly with Hb concentration, but considering the precision of the assay method, the variations were so small that they were regarded as negligible. Hence we concluded that, in the small population studied no diurnal variation in 2,3-DPG was shown.

We should like to thank Professor JW Stewart and the staff of the Haematology Department for their co-operation with this study.

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Possible diurnal variation in 2,3-diphosphoglyceric acid

*Sample**	*Time (h)*	*Hb (g/dl)*	*2,3-DPG (μmol/cm³)*	*2,3-DPG (μmol/gHb)*
A_1	08.00	15·5	2·16	13·9
A_2	12.00	15·2	2·00	13·2
A_3	17.00	15·4	2·08	13·5
A_4	00.00	15·3	2·08	13·6
B_1	08.00	15·4	2·31	15·0
B_2	12.00	15·3	2·23	14·6
B_3	17.00	15·1	2·16	14·3
B_4	00.00	15·2	2·16	14·2
C_1	08.00	15·7	2·16	13·8
C_2	12.00	15·8	2·23	14·1
C_3	17.00	15·5	2·16	13·9
C_4	00.00	16·1	2·31	14·3
D_1	08.00	15·8	2·31	14·6
D_2	12.00	16·2	2·16	13·3
D_3	17.00	15·9	2·31	14·5
D_4	00.00	15·9	2·39	15·0
E_1	08.00	16·8	2·31	13·8
E_2	12.00	17·6	2·23	12·7
E_3	17.00	17·1	2·23	13·0
E_4	00.00	16·9	2·31	13·8

*Subjects were allocated the letters A, B, C, D and E.

Errors in weighing when using a single-pan balance

The errors in weighing plastic vials on a single-pan balance have been noted[1] and the cause attributed to changes in the electrostatic charges on the vials when handling them with plastic disposable gloves. In the same study, smaller errors of up to 0·44 mg were found when weighing glass vials and these were attributed to general errors in weighing. The latter errors appear to be excessive.

Weighing a 10 g weight on a single-pan five-place balance (the Mettler H54AR) the maximum difference I found between any two weighings within batch was 0·01 mg (Table 1).

Using the same balance to weigh glass vials I obtained comparable precision values when plastic forceps were used to handle the vials (Table 2). Precision deteriorated however when the glass vials were handled otherwise; the worst results were obtained when the glass vials were handled with plastic gloves especially when more than minimal handling was involved (maximum weight change 0·78 mg). Plastic vials could be weighed precisely when plastic forceps were used to handle them although the error involved was larger than that found for glass vials (Table 2). Handling plastic vials with plastic gloves resulted in much larger errors (maximum weight change +2·47 mg).

Whilst the above results are in agreement with those found by Fleck *et al*, it would appear that the errors they noted when weighing glass vials were not due to general errors in weighing but were caused by using plastic gloves to handle the vials which presumably alters some physical characteristic of the vials such as the electrostatic charges on them. In support of this, my own experiments were designed to minimise any effect due to fluctuations in external factors such as temperature, humidity and atmospheric pressure. Furthermore different techniques of handling produced different sizes of changes in apparent weight and these

Table 1 *Precision of weighing a 10 g weight on a Mettler H54AR five-place single-pan balance*

	Mean (g)	*SD (mg)*	*Maximum difference in weighing*
Within batch*	10·000134	0·005	0·01 mg
Between batch†	10·000141	0·019	0·05 mg

*Mean of 10 consecutive weighings. The weight was equilibrated at room temperature for at least 24 h, removed from and placed in the balance using plastic forceps and the balance zero checked between each weighing. The 10 weighings were carried out within a period of 30 min to reduce fluctuations in ambient temperature, humidity and atmospheric pressure.
†10 weighings carried out on 10 different days.

Table 2 *Within batch precision* of weighing glass and plastic vials using different handling techniques on the Mettler H54AR balance*

Material	*Method of handling*	*Mean (g)*	*SD (mg)*	*Maximum change in weight from first weighing*
Glass vials	Plastic forceps	12·326798	0·012	+0·03
	Paper tissue	12·326702	0·107	−0·34
	†Plastic gloves	11·519125	0·131	−0·39
	‡Plastic gloves	12·326295	0·252	−0·78
Plastic vials	Plastic forceps	5·452238	0·022	−0·08
	Paper tissue	5·452228	0·061	−0·19
	†Plastic gloves	5·452526	0·229	+0·73
	‡Plastic gloves	5·4154276	1·204	+2·47

*Each object was weighed 10 times using the same precautions as were used when weighing the 10g weight within batch.
†Minimal handling—that is, the vials were only placed in and removed from the balance.
‡Handling consistent with removal and replacement of the cap on the vial.

changes proved to be reproducible. In addition, although the apparent weight of a glass vial changed significantly from the initial weight over a series of weighings, I noticed that if the vial was left for a few hours under the same experimental conditions, its weight would return to within experimental error of the first weighing.

Although the errors described here are for the most part small and for routine purpose would be insignificant, in accurate work they could contribute significantly to the total error. Therefore in circumstances where accurate weighing in glass vials is required, it would be worthwhile taking the above factors into consideration and avoiding the associated errors by the careful use of plastic forceps—that is, handling the vials as little as possible. As has already been pointed out[1] the errors when weighing plastic vials can be large and again the careful use of plastic forceps can do much to reduce the errors involved.

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Reference

[1] Fleck A, Caine S, Merryweather M. Discrepancies in the weight of plastic vials. *J Clin Pathol* 1980;**12**:1220-1.

Effect of oxygen on the lungs after blast injury and burns

I refer to the above article in your issue of October 1981,[1] and in particular to the description of the accident at Golborne Colliery in the second and third paragraphs of the article, which differs from that given by the report of the official inquiry. While the differences are not directly relevant to the type of injuries suffered, these do give a misleading impression of the way the pit was organised.

The correct facts as reported in the official inquiry of Her Majesty's Inspectorate of Mines are as follows:

1 On 18th March 1979 the fans ventilating the development heading (where the explosion occurred) were stopped to cater for a planned rearrangement of electrical switchgear. A team of 11 men worked on this throughout the day shift on 18th March but the work took longer than expected and was not completed by the end of the shift.

2 Meanwhile methane gas accumulated in this heading because of the stoppage of the fans and a degassing operation was undertaken accordingly to remove this gas.

3 The explosion took place during this degassing operation and the ignition was attributed to an incendive spark produced at two exposed live connector pins in electrical apparatus.

4 At no time was the ventilation of the whole mine discontinued or interrupted. The main surface fan had operated continuously.

5 Only one auxiliary fan had failed due to mechanical damage. This fan was in a separate return drivage and played no part in the explosion.

I would be grateful if you would be kind enough to print a correction setting out in full the facts listed above.

R MCL ARCHIBALD
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Reference

[1] Hasleton PS, Penna P, Torry J. Effect of oxygen on the lungs after blast injury and burns. *J Clin Pathol* 1981;**34**:1147-54.

Correction

Cervical intraepithelial neoplasia

On page 8 of the article by CH Buckley *et al*[1] in the issue of January 1982, the legend to 6(b) should read "parabasal dyskaryotic cell".

[1] Buckley CH, Butler EB, Fox H. Cervical intraepithelial neoplasia. *J Clin Pathol* 1982;**35**:1-13.