haemorrhagic diathesis as a cause of the bleeding (Jacobson, 1941).

Even if we could not show any effect on the haemostasis in normals, premarin might well act as a haemostatic agent clinically, through some as yet unknown mechanism. We chose to test this out in epistaxis and in surgery on the prostatic gland, two conditions in which the effect of premarin has been reported to be excellent.

We could not confirm the results of Bleeker (1959), who found that in prostatectomy the number of blood transfusions could be reduced by 50% when premarin was used. There can be no doubt that if premarin is given in surgery the evaluation of the effect should be done with a blind technique. If this cannot be done, it must be preferable to measure the actual loss of blood as in this study, rather than to rely on changes in haemoglobin values or impressions of the blood loss. There was no difference in blood loss between patients who received premarin, either preoperatively only or both pre- and post-operatively, and those who did not receive premarin. Our findings are in good agreement with the result of the double-blind study of Cooner and Burros (1960).

In this connexion we would like to point out that, according to Jacobson, "spontaneous bleeding" excludes surgical and traumatic bleeding. Therefore there should be no indication for premarin therapy in such cases.

Jacobson (1954) states that "spontaneous bleeding" is often preceded by tension or stress. One may assume then that the bleeding in itself will increase the anxiety and a vicious cycle will then be started. All kinds of treatment which would tend to break this cycle somewhere will reduce the actual bleeding. This should be kept in mind when the effect of premarin in epistaxis is evaluated. When a physician takes care of such a patient, talks with him, puts him to bed, gives him any kind of medicine, he will calm the patient and tend to break the cycle. This treatment in itself would be a major factor in controlling the bleeding. If premarin has any effect over and above this, it must be proved in a controlled study with a double-blind technique. This has never been done, and the clinical reports on premarin are therefore of little value in our opinion. Our double-blind study is unfortunately small, but it does suggest that the effect of premarin is only that of a placebo.

The theory that "spontaneous bleeding" is a clinical entity which is due to a low oestrogen level in the blood seems to us to be very speculative and loosely founded. So far as we know, this postulated low level of oestrogen has never been demonstrated. If the theory be correct, it is difficult to understand why there is not a striking difference in the incidence of spontaneous bleeding between men and women.

We have confirmed that premarin produced no side-effects. We think, however, that this fact in itself is no justification for the extensive use of premarin. We are afraid that such a drug will give the doctor who is using it a false sense of security, and that this, together with the additional expense, is against the best interest of the patient.

Summary and Conclusion

The haemostatic effect of premarin has been tested on: (1) various vascular, platelet, and clotting functions in normal individuals; (2) prolonged bleeding-time and positive tourniquet tests in patients with haemorrhagic diathesis; (3) patients undergoing prostatectomy: blood loss during operation and for the next three days has been measured, and compared with the loss in a control group; and (4) patients with epistaxis; in a double-blind study.

In the first three groups no effect, and in the fourth a placebo effect only, could be demonstrated.

Premarin produced no side-effects. Still, the danger of false security by using an ineffective haemostatic agent should not be underestimated.

As a result of this study, premarin has not been marketed in Norway.

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SCHOOLGIRLS' BEHAVIOUR AND MENSTRUATION

BY

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The possibility of girls' behaviour being adversely affected by menstruation has been discussed in a previous paper (Dalton, 1960), in which the deleterious effect of menstruation on school work was analysed. An excellent opportunity of studying their behaviour presented itself at an English public school. Here it is the custom for all order marks given for bad behaviour to be recorded together with the date and type of offence, and it is also customary for the matron to keep records of the girls' menstruation dates. This paper analyses offences committed during the spring term of 1960.

The school is situated in the Home Counties, occupies over 400 acres, and boards 350 girls between the ages of 8 and 19 years. The school aims to prepare girls "for the dual role of home-maker and professional woman, special attention being given to their moral and religious training." There is a preparatory school for girls between 8 and 11 years; the senior school is

divided into six houses each supervised by a housemistress and matron. This analysis deals with four houses only, records of menstruation dates being incomplete for the other two.

Method

Offences committed within 14 days before or 14 days after the onset of menstruation are the only ones included in this analysis.

The menstrual cycle of 28 days was divided into seven four-day periods, Days 1 to 4 represented menstruation and Days 25 to 28 the premenstruum. Offences committed during the 14 days before menstruation were allocated to the second half of the menstrual cycle thus:

1 - 4	days before menstruation	= Days 25–28
5 - 8	,, ,, ,,	= Days 21–24
9 -12	,, ,, ,,	= Days 17–20
13 and 14	,, ,, ,,	= Days 15 and 16

This method of allocation eliminates the difficulty caused by the widely varying length of girls' cycles and is suitable for analysis of the effect of menstruation, premenstruum, and postmenstruum, but not for ovulation.

Results

During the 14 days before or after the onset of menstruation 272 offences were committed and of these 29% were committed during menstruation (Fig. 1). This is double the expected incidence had there been an even distribution of offences throughout the cycle. This same high incidence of offences during menstruation occurred among offences committed (*a*) during form time, (*b*) during free periods, and (*c*) administered by prefects; it persisted among individual offences and among those involving two or more girls, and it was not influenced by the regularity or irregularity of menstruation or by the duration of menstrual loss. Significance tests, using the χ^2 test with six degrees of freedom, show, in each instance, that the probability of such a distribution occurring by chance is less than one in a thousand.

The Table shows the preponderance of offences of various types during menstruation (the expected proportion for a purely random distribution being 14%). There is a significantly high proportion of offences committed during menstruation for unpunctuality, forgetfulness, and avoiding games. Talking was less significant as a menstrual offence, while eating during lessons and wearing the wrong clothes occurred evenly throughout the cycle.

Schoolgirls' Offences During Menstruation

Type	Offences During Menstruation		Total Offences	χ^2 on 1 d.f.	Probability
	No.	%			
All offences ..	82	30%	272	54·3	0·001
Unpunctuality ..	28	33%	84	25·0	0·001
Forgetfulness ..	6	43%	14	9·3	0·001
Avoiding games	7	37%	19	7·9	0·01
Talking	16	25%	63	6·3	0·02

The " good " girls with only one or two offences per term committed 26% of their offences during menstruation (as compared with the chance expectation of 14%), while the " naughty " girl with more than six offences per term was more influenced by menstruation, committing 36% of her offences during this four-day period (Fig. 2). The words " naughty " and " naughtiness " have been deliberately chosen as they are in common use at school, and avoid more serious associations of a term like " behaviour disorder."

Twenty-seven girls, who had committed more than four offences per term, were selected and the headmistress was asked to supply additional information about them—namely, whether they were above or below normal height, weight, or maturity; whether they were adopted or had any personal or home stress problems. These girls were grouped into three classes: (1) behaviour influenced by menstruation—that is, over 50% of their offences committed during menstruation; (2) behaviour possibly influenced by menstruation—that is, between 25% and 50% of their offences committed during menstruation; and (3) behaviour not affected by menstruation—that is, less than 25% of the offences committed during menstruation.

The headmistress was shown the three groups of girls' names, without knowing to which category they belonged, and was asked to comment on the groups.

The 13 girls whose behaviour was definitely influenced by menstruation were described as " just naughty from exuberance or laziness." Three had a personal stress—for example, broken home, ill parent—and their average intelligence was high, with only two in the lowest of

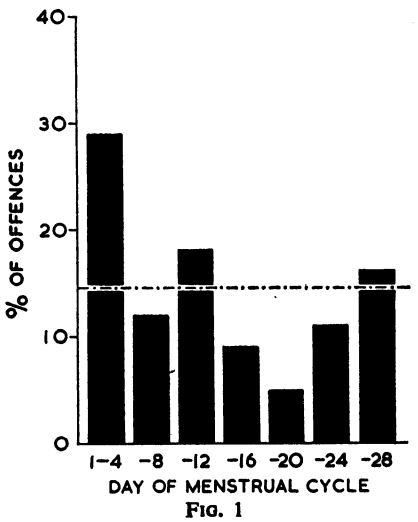

FIG. 1

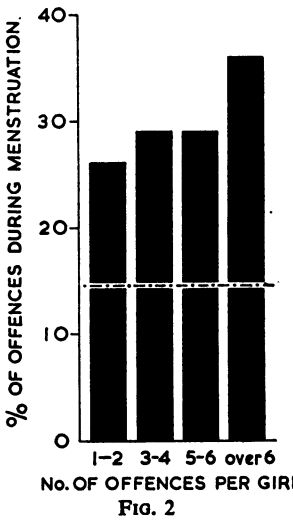

FIG. 2

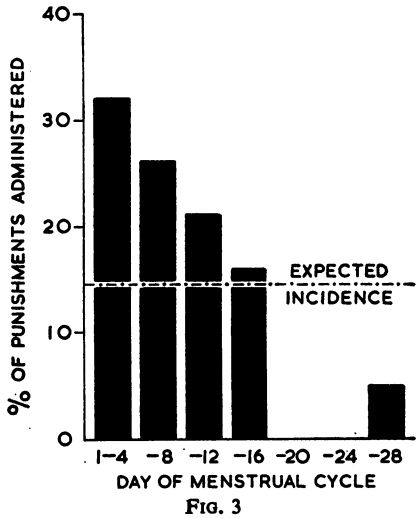

FIG. 3

FIG. 1.—Distribution of 272 offences committed during the menstrual cycle. FIG. 2.—Number of offences per term and those committed during menstruation. FIG. 3.—Punishment administered by prefects during their menstrual cycle.

the three academic forms for their age group. The commonest offences were lateness and talking.

The eight girls unaffected by menstruation were described by the headmistress as "problem girls requiring careful handling and understanding." Seven of the eight had a personal stress problem, one girl being described as "the most unfortunate girl in the whole school." Their general level of intelligence was below the average, and five of the eight were in the lowest form for their age. Disobedience and rudeness were the commonest offences in this group.

The intermediate group of six girls whose behaviour was possibly influenced by menstruation was correctly described by the headmistress as midway in characteristics between the other two groups. These girls were intermediate as regards the proportion of stress situations and the general level of intelligence.

This suggests that two types of naughtiness can be differentiated among schoolgirls. Firstly, naughtiness due to the hormonal changes of the menstrual cycle, which tends to occur among the brighter and well-adjusted girls. Secondly, naughtiness due to psychological stress, which is not affected by menstruation. The three groups were comparable with regard to height, weight, maturity, and size of families, but the group affected by menstruation tended to be younger, although not statistically significant.

There were 11 prefects among the sixth form girls, aged 16 to 18 years, who were permitted to punish girls for misbehaviour. An interesting and important feature is seen in Fig. 3 in that they gave significantly more punishments during their own menstruation, while their standards tended to rise at each menstruation and then fall gradually during the cycle. This raises the point whether the same is true of women generally, especially teachers, magistrates, and others in authority.

Summary

In schoolgirls there is a significant increase in misbehaviour during menstruation, particularly offences such as unpunctuality, forgetfulness, and avoiding games. The offences during menstruation are especially increased among naughty girls.

Two types of naughtiness could be distinguished. Firstly, that occurring predominantly during menstruation. These girls were free from psychological stress and tended to be the more intelligent. Secondly, that occurring evenly throughout the cycle, in girls with recognized psychological problems.

The administration of punishments by the prefects is significantly influenced by menstruation.

I thank the headmistress for permission to analyse her books, and for her kind co-operation in all stages of this investigation; Dr. P. Armitage for his statistical advice; and Dr. E. W. Dunkley for his wise criticism of the script.

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An Institute of Thoracic Diseases has been established at the Royal North Shore Hospital, Sydney, Australia. The aim is to model the Institute on the Institute of Diseases of the Chest associated with the Brompton Hospital and the London Chest Hospital, and as it develops it is hoped to organize extended courses to which Asian students will be welcome. (*Med. J. Aust.*, October 1, 1960.)

HYDROPS FOETALIS WITH A FAST-MOVING HAEMOGLOBIN

BY

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The clinical picture of hydrops foetalis is well known, and the most important cause of this disease is thought to be incompatibility between the mother's blood and the foetal blood.

During a study of the haemoglobin of premature and stillborn infants we came across a premature infant who clinically showed the symptoms of hydrops foetalis, with hepato-splenomegaly and anaemia, and who carried an unusual fast-moving haemoglobin in the blood. This case drew attention to the possibility of a faulty haemoglobin metabolism as another cause of this well-known clinical picture.

Case Report

A married woman aged 24 was admitted to hospital because of vaginal bleeding during pregnancy. She was about 34 weeks pregnant. This was to be her second child. Her first child, a boy, was born prematurely at the age of about 36 weeks. After about two weeks in hospital she was delivered of a premature female infant by breech, who showed gross abnormalities. The infant was hydropic, weighed 2,630 g., and had a body length of 42 cm. Oedema was marked and generalized. The child looked anaemic. The head appeared relatively small, while the extremities were rather short. The spleen and liver were greatly enlarged. The placenta looked very abnormal. It was greatly enlarged and very thick and oedematous. Its weight was about 2 kg., and it was anaemic and friable. On microscopical examination Dr. Sutomo Tjokronegoro, professor of pathology, found that the stroma of the chorionic villi was oedematous and loose, with here and there hyperplasia of the stroma cells. The capillaries contained numerous normoblasts and erythroblasts, of which many were young (see Fig. 1). The picture was compatible with that found in cases of erythroblastosis foetalis.

Routine haemoglobin analysis carried out on the cord blood showed it to be unusual. By the paper electrophoretic method of Smith and Conley (1953), at *p*H 8.6, two haemoglobin spots were seen. One had the mobility of haemoglobins A and F, while the other was a fast-moving haemoglobin which was much faster than normal haemoglobin A but definitely slower than haemoglobin H. At *p*H 6.5 it was more anodal than haemoglobin A, but more cathodal than haemoglobin H, and had the same mobility as haemoglobins Fessas and Papaspyrou (1957). It could easily be distinguished from haemoglobin J at this *p*H, because at *p*H 6.5 haemoglobin J did not separate from haemoglobin A, while the above-mentioned component was clearly separated from haemoglobin A. It is a pity that we did not have available for comparison the Bart's haemoglobin, which was described by Ager and Lehmann (1958) as migrating between haemoglobin A and haemoglobin H and as being slightly faster than haemoglobin J and haemoglobin Fessas and Papaspyrou. The unusual

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