

transposition of sentences in an early draft. The author therefore wishes to amend the last six lines on p 583 to read:

"... work that Waddington had originally envisaged. A notable exception which fitted into Waddington's original concept was the work on the development of the avian lens in the group led by Mrs Ruth Clayton. The laboratory became well known for the DNA-RNA investigations which earned a world reputation for at least two of the leading workers."

We must unreservedly withdraw all inferences to the effect that Mrs Clayton's work and that of her group is anything other than of the highest class and of a deserved worldwide reputation and we wholeheartedly apologise to Mrs Clayton for the embarrassment caused to her and her group by the unfortunate misplacing of the sentences in the article.

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**Smoking behaviour in medical students**

SIR,—Dr Eva Lester's study of smoking in medical students at the Royal Free Hospital (24-31 December, p 1630) prompts us to report our own, somewhat different, results obtained at the universities of Cambridge and Birmingham as a part of a much larger questionnaire distributed during October and November 1977. We asked students if they smoked and, if so, to estimate their consumption; our data are thus comparable with Dr Lester's for "current smokers." In Birmingham we distributed the questionnaire to all five years, while in Cambridge we studied only freshman medical students, together with a one-in-five sample of other freshman students. Although sample sizes for the clinical years are small, this probably does not invalidate our results, since tobacco consumption shows no relationship to volunteering behaviour.<sup>1</sup>

At both Birmingham and Cambridge the smoking rate was lower among preclinical students than in the Royal Free study, being 9.9% and 11.5% respectively in freshmen compared with 24.2%. At Birmingham the proportion of smokers, and particularly of heavy smokers (>15 cigarettes/day) increased as students passed through the medical school. Taking all the groups together there was no significant difference between the sexes, 16.8% of 524 males smoking compared with 14.1% of 227 females ( $\chi^2=1.24$ , 1 DF, NS). Neither was there a significant tendency for women to be lighter smokers, 25.7% of 70 male cigarette smokers consuming more than 15 cigarettes per day compared with 12.9% of 31 female cigarette smokers ( $\chi^2=1.16$ ,

1 DF, NS). The social class distribution of these students has been analysed in detail elsewhere,<sup>2</sup> and is broadly comparable with that from the Royal Free, although since 1961 there has been a significant increase, in Birmingham, of students from social class I and from medical families.

It is a controversial and interesting question as to whether medical students smoke less than their peers. Dr Lester suggests not, as also does work from Newcastle.<sup>3</sup> Our own data from Cambridge provide a direct comparison with a control group. Medical freshmen smoked less than did their non-medical peers (see table), although the difference is not significant in its own right ( $\chi^2=2.38$ , 1 DF, NS). However, when the data from Cambridge and Newcastle are combined then a significant difference in the expected direction is found ( $\chi^2=6.29$ , 2 DF,  $P<0.05$ ). It is worth noting that this difference is apparent in freshmen before the medical students have received any specific education upon smoking and its effects upon health.

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<sup>1</sup> Rosenthal, R, and Rosnow, R L, *The Volunteer Subject*, p 55. New York, Wiley, 1975.  
<sup>2</sup> McManus, I C, *Queen's Medical Magazine (Birmingham)*, 1977, 69, 10.  
<sup>3</sup> Brunskill, A J, *British Medical Journal*, 1977, 1, 165.

SIR,—As a student who participated in Dr Eva Lester's survey of smoking behaviour in medical students (24-31 December, p 1630) I would like to draw attention to an omission in Dr Lester's analysis of her data. She states that "... although medical students are less likely to smoke than their contemporaries in the general public, when allowances are made for social class this difference largely disappears." While this conclusion is true for the male medical students, her own analysis shows that after correction for age and social class there is a reduction in smoking of about 50% among women medical students, when compared with their counterparts in the general public. Previous work<sup>1</sup> has shown that women make better students, in terms of their progress through medical school. To this we can perhaps add that, on qualification, women doctors set their patients a better example with respect to smoking and are thus more effective in this important area of preventive medicine.

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<sup>1</sup> Report of the Royal Commission on Medical Education 1965-68. Chairman, Rt Hon Lord Todd. Cmd 3569. London, HMSO, 1968.

**Hyponatraemia associated with hydrochlorothiazide treatment**

SIR,—Further to Dr C A Pinnock's letter (7 January, p 48) may we describe three cases of severe hyponatraemia associated with treatment with Moduretic (hydrochlorothiazide 50 mg and amiloride 5 mg per tablet)?

During 1977 two men aged 72 and 65 and one woman aged 71 were admitted to hospital with severe weakness and confusion. All had been receiving Moduretic, in the first case one tablet twice daily for three weeks, in the second one tablet daily for three weeks, and in the third one tablet twice daily for two years, for treatment of congestive cardiac failure or hypertension. On admission their plasma sodium concentrations were 108, 101, and 102 mmol/l respectively. The first and third patients were normotensive whereas the second was hypotensive. None of the patients had oedema. Each improved rapidly after intravenous sodium replacement and subsequently remained well without diuretics. The first patient was also receiving chlorpropamide.

We considered that these three patients had hyponatraemia with sodium depletion, although a coexisting dilutional factor due to chlorpropamide administration<sup>1</sup> may have been present in the first patient.

Twelve elderly patients with Moduretic-associated hyponatraemia described by Houdent *et al*<sup>2</sup> were reported to be sodium-depleted with a superimposed dilutional factor in some. This report, along with that of Roberts *et al*,<sup>3</sup> suggests that severe diuretic-induced hyponatraemia with sodium depletion may be commoner than previously suspected and that older patients may be particularly at risk. Regular measurement of plasma electrolyte concentrations and discontinuation of therapy when sodium levels start falling would help to prevent the severe disturbances reported.

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<sup>1</sup> Fischman, M P, *et al*, *Annals of Internal Medicine*, 1971, 75, 853.  
<sup>2</sup> Houdent, C, *et al*, *Annales de Médecine Interne*, 1976, 127, 628.  
<sup>3</sup> Roberts, C J C, Mitchell, J V, and Donley, A J, *British Medical Journal*, 1977, 1, 210.

SIR,—Dr C A Pinnock again draws our attention to the fact that diuretics can induce hyponatraemia (7 January, p 48). There are, however, two circumstances under which this reaction can occur. Hyponatraemia is a relatively common finding in patients with severe congestive cardiac failure and can be exacerbated by over-enthusiastic diuretic regimens. In these patients total exchangeable sodium is increased and there is usually an elevated blood urea concentration. Hyponatraemia has also been observed in patients taking diuretics in the absence of peripheral oedema or other signs of cardiac failure.<sup>1,2</sup> Blood urea in these patients is either normal or only marginally elevated and when measured total exchangeable sodium has been normal or reduced.<sup>1</sup> The mechanism of the latter effect is disputed. A degree of sodium depletion together with the effect of the drugs in the diluting segment of the nephron may cause decreased free water production and consequent intracellular over-

*Smoking habits of university students*

University	Subject	Year at university	No	Smokers (%)	Light smokers (<1 cigarette day or pipe or cigar only) (%)	Heavy smokers (>15 cigarettes day) (%)
Cambridge	Non-medical	1	232	17.7	4.3	2.6
Cambridge	Preclinical	1	165	11.5	3.6	0.6
Birmingham	Preclinical	1	111	9.9	3.6	0.9
Birmingham	Preclinical	2	86	12.8	5.8	2.3
Birmingham	Clinical	3	59	22.0	5.1	3.4
Birmingham	Clinical	4	55	27.3	5.4	7.3
Birmingham	Clinical	5	43	27.9	4.6	9.3