

capacity of a Boeing 747 will be introduced. The technical difficulties of destroying all flying insects that may find shelter in wide-bodied aircraft are considerable and not easily overcome. Our own Ministry of Overseas Development is well aware of this problem and an entomological survey carried out last year revealed the presence of *A gambiae* on Assumption Island, some 600 miles (1000 km) from Mahé; another survey will be carried out on the Amirante Islands, about 250 miles (400 km) west of Mahé.

The possibility of introduction of *A gambiae* and of the malaria parasite into the Seychelles is a very serious threat to the non-immune population and a local epidemic of *Plasmodium falciparum* malaria could be calamitous.

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<sup>1</sup> Bruce-Chwatt, L J, *Miscellaneous Publications of the Entomological Society of America*, 1970, 7, 7.  
<sup>2</sup> Bruce-Chwatt, L J, Draper, C C, and Konforton, P, *Lancet*, 1973, 3, 547.

**Immunological factors in pre-eclampsia**

SIR,—Your leading article (11 September, p 604) gives within its limits a fair review of the possible interrelationship of immunological factors and pre-eclampsia. It might, however, have guided your readers to two very recent more extensive reviews from different sides of the Atlantic on immunological and immunogenetic aspects.<sup>1,2</sup> It is also relevant that Stevenson, to whose earlier work you refer, has recently published with his colleagues<sup>3</sup> a further study which tends to support their earlier findings, while Need *et al*<sup>4</sup> have reported diminished lymphocyte response to phytohaemagglutinin, which may be regarded as in keeping with the report of diminished spontaneous lymphocyte transformation to which you refer.

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<sup>1</sup> Scott, J R, and Beer, A A, *American Journal of Obstetrics and Gynecology*, 1976, 125, 418.  
<sup>2</sup> Scott, J S, and Jenkins, D M, *Journal of Medical Genetics*, 1976, 13, 200.  
<sup>3</sup> Stevenson, A C, *et al*, *Journal of Medical Genetics*, 1976, 13, 1.  
<sup>4</sup> Need, J A, Jenkins, D M, and Scott, J S, *British Journal of Obstetrics and Gynaecology*, 1976, 83, 438.

SIR,—Although all will agree that the immunology of pregnancy is intriguing, your comments on the relevance of immunology to pre-eclampsia (leading article, 11 September, p 604) are more optimistic than another recent review.<sup>1</sup>

There is no other immunological syndrome which subsides rapidly, as is the case with the delivery of the placenta. Reports that there are deposits of immunoglobulins in the kidneys have appeared only in later years and the possibility of non-specific deposition of proteins has not been adequately ruled out.

Pre-eclampsia is still hypertension of pregnancy that has a special significance owing to: (1) renin production by the chorion and its release with uteroplacental insufficiency, (2) pressure of the uterus on the vena cava predisposing to fluid retention, and (3) physiological inhibition of fibrinolysis facilitating the occurrence of high-molecular-weight fibrin complexes in the circulation whenever

there is local intravascular coagulation within the placental bed owing to trophoblast degeneration.

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<sup>1</sup> Scott, J R, and Beer, A A, *American Journal of Obstetrics and Gynecology*, 1976, 125, 418.

**Cigarette smoking in pregnancy**

SIR,—Your leading article (28 August, p 439) draws attention again to the hazards of smoking in pregnancy. One aspect which has not hitherto been evaluated is the changing composition of cigarettes in time.

Data giving average weight of tobacco smoked and average tar and nicotine yields for cigarettes sold in Britain for each of the 10 years 1965-74 have kindly been made available recently by Mr G F Todd.<sup>1</sup> The Cardiff Births Survey<sup>2</sup> has provided the average daily cigarette consumption of women resident in Cardiff who were known to smoke throughout pregnancy. It has also provided the mean birth weight and perinatal mortality rate per 1000 total births for singletons born to 17 796 known smokers and 21 555 known non-smokers. The accompanying table is derived from these sets of data. Possibly women may smoke relatively more filter-tipped and milder brands of cigarettes than figures based on the entire smoking public would suggest, but the bias this produces has probably changed little during the period studied. Again, they may inhale less.

The difference in mean birth weight between smokers and non-smokers is 189.5 g, which is highly significant ( $t=34$ ,  $P<0.001$ ). Mean birth weight has fallen by 10.0 g/year in non-smokers ( $t=7.70$ ,  $P<0.001$ ) and by 7.8 g/year in smokers ( $t=5.33$ ,  $P<0.001$ ). The difference between these two slopes is not significant ( $t=1.11$ ).

The mean perinatal death rates for smokers and non-smokers were 26.0 and 19.9 per 1000 total births respectively. These differ highly significantly ( $\chi^2=15.63$ ,  $P<0.001$ ). On the pooled data the perinatal death rate improved by 0.43 per year, but this did not reach statistical significance<sup>2</sup> ( $t=1.63$ ). The improvement among non-smokers (0.61 per year) was greater than that observed among smokers (0.20 per year), but not significantly so ( $t=0.74$ ).

Thus among women who smoked throughout pregnancy the mean number of cigarettes smoked daily has increased, weight of tobacco consumed has risen slightly, but tar and nicotine intakes have fallen. However, over the same period the excess risk of perinatal loss for smokers has increased and the birth-weight deficit has decreased, but neither of these trends reaches statistical significance. Perhaps outcome is more closely related to

carbon monoxide or cyanide intake, for which no information was available.

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<sup>1</sup> Todd, G F, Lee, P N, and Wilson, M J. In press.  
<sup>2</sup> Chalmers, I, *et al*, *British Medical Journal*, 1976, 1, 735.

**Confirmation of abstinence from smoking**

SIR,—Dr M A H Russell and his colleagues, in their interesting paper reporting the effect of nicotine chewing gum on smoking behaviour as an aid to cigarette withdrawal (14 August, p 391), state that 70% of their subjects stopped smoking during treatment and that 23% were still abstinent at one year. As it is common experience that cigarette smokers are often untruthful when claiming to have stopped smoking it would be helpful if the authors could state how they confirmed "abstinence from smoking."

The mean blood carboxyhaemoglobin (COHb) level of non-smokers in the City of London is 1.3% and previous workers<sup>1</sup> have stated that estimations of COHb provide an absolute indication of whether or not a smoker is still smoking. A COHb level of greater than 2% has been suggested as providing supporting evidence that a subject has indeed not stopped smoking.<sup>2</sup>

Although Dr Russell and his colleagues state that blood samples for COHb analysis were taken at the final follow-up visit at one year, the values are not given. It would be helpful if they could provide these values and also state what they regard as the upper limit of normal for COHb in non-smokers.

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<sup>1</sup> Castleden, C M, and Cole, P V, *British Journal of Industrial Medicine*, 1975, 32, 115.  
<sup>2</sup> Sillett, R W, Turner, J A M, and Ball, I C P, in *Proceedings of the 3rd World Conference on Smoking and Health*, ed E L Wynder, D Hoffman, and G B Gori. Washington, DC, US Government Printing Office. In press.

\*.\*Dr Turner sent a copy of this letter to Dr Russell and his colleagues, whose reply is printed below.—ED, *BMJ*.

SIR —Dr Turner has pin-pointed the problem of overlap in the distributions of COHb levels of smokers and non-smokers. Non-smokers derive CO from the fumes of cars and chimneys, from the smoke of poorly ventilated places where other people are or have been smoking,<sup>1</sup> and from endogenous processes within their own bodies.<sup>2</sup> One of the problems in setting arbitrary limits is that COHb levels have been tested by a number of different

*Average daily consumption of cigarettes by Cardiff parturients who smoked and outcome of pregnancy in smokers and non-smokers, 1965-74*

Year:	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
No of cigarettes	12.7	12.7	12.9	13.1	13.9	14.4	14.4	14.7	15.3	14.9
Tobacco (g)	8.93	8.74	8.78	8.77	8.99	9.16	9.05	9.27	9.80	9.48
Tar (mg)	399	384	336	312	331	325	306	301	287	272
Nicotine (mg)	26.4	25.3	23.5	22.5	23.2	22.5	21.7	21.8	22.1	20.5
Mean birth weight (g):										
Smokers	3155	3150	3150	3145	3115	3105	3081	3089	3096	3114
Non-smokers	3345	3342	3345	3336	3318	3280	3279	3266	3285	3285
Perinatal mortality (per 1000):										
Smokers	22.7	30.6	24.2	24.8	31.9	20.3	32.4	26.3	24.3	21.1
Non-smokers	21.3	23.5	20.1	23.7	19.9	17.3	17.4	20.1	20.9	14.4