examination of the facts. The article on abortion is merely a statement of view from one man and his rather brusque dismissal of any alternative view will rightly offend many caring medical professionals and non-medical people.

It is an excellent article but would have been much better placed in the personal view column of the journal. Publishing this sort of essay as an editorial devalues the other editorials.

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1 Paintin D. Abortion in the first trimester. *BMJ* 1992;305:967-8. (24 October.)

EDITOR,—You request responses to David Paintin's article on a woman's right to choose abortion in the first trimester.¹

I number myself among those who maintain that "abortion is always wrong because it results in the destruction of a fetus" and who are "simplifying a complex subject." Abortion is undeniably a difficult problem, and those who advocate abortion on demand could also be said to be simplifying a complex subject. The late Francis A Schaeffer wrote, "Abortion does not end all the problems; often it just exchanges one set for another."² Whatever the result of a pregnancy, the fact that the woman had conceived and was carrying a child cannot be changed. I have personal experience of women, both married and single, who suffer acute distress after an induced abortion; this distress is exacerbated at the time the child would have been born and on the anniversary of the child's abortion. These women are aware that they have allowed the destruction of their child and will bear that burden all their lives.

Paintin rightly highlights the fact of the decline in marriage, but seems to think we should "maximise the advantages rather than deplore change." Can anyone explain the advantages of the decline in marriage?

The human race is created by God, who has issued a clear "rule book" for behaviour—the Scriptures of the Old and New Testaments of the Bible. The serious problems now faced over morals and ethics in general, and over abortion in particular, result from mankind ignoring God's absolutes in favour of arbitrary rules governed by expediency and self interest. God clearly lays down, among other things, His pattern for family life. This is based on sexual continence before marriage (I Corinthians vi, 18: Flee fornication. Every sin that a man commits are outside his body; but he who commits fornication sins against his own body); sexual faithfulness within marriage of man and woman (Exodus xx, 14: You shall not commit adultery); and the exclusiveness of the marriage relationship (Matthew xix, 5: For this cause shall a man leave father and mother, and be united to his wife: and the two will become one flesh). God also forbids the taking of human life (Exodus xx, 13: You shall not kill); and in many parts of Scripture (Jeremiah i, 5 and Isaiah xlv, 2, for example) it is clear that unborn human life is afforded the same status as "born" life. (These references are but examples of many such clear statements in the Bible.)

The fact that mankind has largely departed from the fear and worship of God does not set aside God's commands for our life. These commands are not to restrict us or make us miserable and frustrated but to give us the freedom that comes from the security of acting within the will of our Creator, who devised every rule for our benefit.

There are organisations, both Christian and otherwise, which exist to give advice and practical support to women with an unwanted pregnancy: CARE, Life, etc. They will also help to arrange for the adoption of the child if that appears the best

course of action. I know from my experience as medical adviser to an adoption panel that there are many childless marriages where a loving home is offered to babies and older children who cannot be reared by their birth parents. Childlessness is made all the more painful by the knowledge that "unwanted" children are being deliberately destroyed. It is hard to give up a child for adoption, but I suggest that it is harder to live with giving up a child to death. I realise that I am using emotive language, but nothing is lost by facing the reality of an action in plain words.

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1 Paintin D. Abortion in the first trimester. *BMJ* 1992;305:967-8. (24 October.)

2 Copp CE, Schaeffer FA. *Whatever happened to the human race?* New York: Crossway Books, 1983.

EDITOR,—I agree with David Paintin that "many decisions necessitate some compromise between conflicting moral principles" and also that "actions are ethical only if all relevant factors have been considered,"¹ but does his article not go on to ignore many relevant factors? Is it not therefore less than fully ethical?

As always when dealing with a pregnant woman, the doctor discussing abortion has two patients—the woman and the fetus. Paintin dismisses discussion of fetal rights in "People who maintain that abortion is always wrong because it results in the destruction of a fetus are simplifying a complex subject." There is no mention at all of the word father. The "partner" (not necessarily the same person) is mentioned only twice. Does the father have no say?

The gradual disappearance of the traditional family unit based on a stable marriage—agreed to be the cause of the increase in numbers of abortions—is not questioned. Many doctors would be concerned about wider health implications here. And could abortion have an effect on children already born or to be born? The editorial comment on this leading article notes correctly that "consumer choice has been accorded almost sacred status of late." I suggest that there are other principles which are genuinely "sacred" and that society and the profession must ask themselves of this particular proposed "consumer choice," is the customer always right?

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1 Paintin D. Abortion in the first trimester. *BMJ* 1992;305:967-8. (24 October.)

EDITOR,—David Paintin rightly places the increasing number of abortions in the context of the changing sexual behaviour and the poor provision of sex education.¹ He grants rights to the mother but does not address the issue of the fetus. Is the fetus a person? Does a person have rights only if he or she is able to demand them? If we cannot prove that the fetus is or is not a person are we at liberty to destroy it? These complex metaphysical questions are central to the issue of whether a woman has a right to an abortion in any circumstances.² They require answers even if some of those who raise them can be suspected of being sexually repressive.

I hope the profession will abandon polemics and face the painful complexity of the ethics of allowing abortion on demand.

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1 Paintin D. Abortion in the first trimester. *BMJ* 1992;305:967-8. (24 October.)

2 O'Donovan O. *Begotten or made?* Oxford: Oxford University Press, 1984.

Propofol infusion in children

EDITOR,—We wish to reply to S Cook's letter¹ referring to our paper on propofol infusions in children.² Cook says that the baby in case 4 received a propofol infusion for 64 hours and not the 74 hours stated in our paper. Cook also says that she died almost three days after the infusion was stopped. Later he states that these inaccuracies lead him to wonder if there are similar inaccuracies in the other case reports. We have reviewed the notes on case 4, including the propofol infusion chart. This baby received a propofol infusion over 74.5 hours, although this included a gap of almost an hour when no propofol was infused. The interval between the infusion being stopped and the baby being certified dead was 38 hours.

We agree that the raised core temperature and peripheral vasoconstriction would have contributed to the metabolic acidosis in case 5. These high core temperatures, however, occurred for only 10 hours before death. A base deficit of 9.5 mmol/l had been seen about three days before, some 20 hours after the propofol was started, when the highest recorded core temperature had been 38.5°C and the blood urea concentration 3.6 mmol/l and the creatinine concentration 76 µmol/l.

Acute deterioration, with an abrupt fall in heart rate, did take place at about the time of the first intravenous dose of ceftazidime, and the two may have been related. All the other case reports, however, described similar events and none of those children received ceftazidime.

The question of whether to report possible adverse drug reactions in the medical press before they are fully investigated and understood is difficult. Evidence suggests that use of propofol to sedate children in intensive care units is becoming widespread: it was used in 14 of 15 paediatric intensive care units polled in the United Kingdom.³ If the events that we describe are related to propofol more deaths would probably occur during the time needed to carry out a definitive investigation. In our view the correct course was to publish these cases and to suggest that widespread use of high dose propofol to sedate children should be stopped pending further investigation—a view with which the manufacturers seem to agree.

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1 Cook S. Propofol infusions in children. *BMJ* 1992;305:952. (17 October.)

2 Parke TJ, Stevens JE, Rice ASC, Greenaway CL, Bray RJ, Smith PJ, et al. Metabolic acidosis and fatal myocardial failure after propofol infusions in children: five case reports. *BMJ* 1992;305:613-6. (12 September.)

3 Matthews AJ. Sedation, muscle relaxation, and analgesia in PICU. *Care of the Critically Ill* 1991;8:34.

EDITOR,—S Cook fears the time when "we must practise medicine in a transatlantic manner, with use of agents being controlled by fear of litigation and not by scientific investigation."¹ Scientific investigation into the use of propofol infusions has so far shown that even induction doses of propofol are associated with appreciable adrenocortical depression.^{2,3} In 1983 another drug, etomidate, was used to sedate patients in intensive therapy units, also without a product licence, and was found to be associated with increased mortality, due possibly to adrenocortical suppression.^{5,6} This association remains controversial and inconclusive, but etomidate is no longer given by infusion in these patients.⁷

Cook reports having looked at "several" children and finding no evidence of a direct effect of propofol or its vehicle on any aspect of metabolism in these patients. This seems to be at odds with the work of O'Flaherty et al.^{2,3}

Why all the fuss? There are other drugs available

to sedate children that have stood the test not only of scientific investigation but also of time. Morphine, barbiturates, and the more recent additions such as fentanyl and alfentanil have all been used in critically ill patients without major problems.⁸ As propofol does not have a licence for use as an infusion in children and, at best, scientific investigation suggests that it may be detrimental in critically ill children, it seems mandatory that this drug is not used routinely for sedating children in intensive therapy units. Cook should realise that if we use drugs before scientific investigation has shown them to be safe we have only ourselves to blame if they are later shown to cause problems.

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- 1 Cook S. Propofol infusion in children. *BMJ* 1992;305:952. (17 October.)
- 2 O'Flaherty D, Catania A, Krishnan S, Giesecke AH, Lipton J. Differential effects of total anaesthesia versus inhalational anaesthesia in neuroendocrine and immune reactions during standardized surgical stress. *Eur J Anaesthesiol* 1991;8:A498.
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- 7 Gemmell LW. Etomidate and adrenocortical function. *Lancet* 1983;ii:1434.
- 8 Sedation on the intensive care unit [editorial]. *Lancet* 1984;ii:1388-9.

EDITOR,—David O'Flaherty and Anthony P Adams speculate that the lipaemic serum observed in the five children who died after infusion of propofol might be explained by adrenocortical suppression resulting in diminished lipolysis and oxidation of fat.¹

Lipaemia occurs when large triglyceride rich particles such as chylomicrons and very low density lipoprotein are increased in plasma since, because of their size, these particles reflect light, giving a turbid appearance. Propofol consists of an emulsion of such large triglyceride rich complexes. Lipolysis occurs during relative cortisol excess or insulin deficiency and is associated with increased secretion of very low density lipoprotein from the liver (producing lipaemia) as a secondary response to the increased mobilisation of free fatty acids from adipose tissue. Consequently, cortisol deficiency resulting in diminished lipolysis would not be expected to contribute to the development of lipaemia.

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- 1 O'Flaherty D, Adams AP. Propofol infusion in children. *BMJ* 1992;305:952-3. (17 October.)

EDITOR,—T J Parke and colleagues report on five children who died after receiving propofol infusion for sedation during ventilation.¹ We report a case in which the child recovered.

A 1 month old baby was admitted to the Royal Aberdeen Children's Hospital with an eight day history of paroxysmal cough, whoop, and vomiting. The clinical diagnosis of whooping cough was supported by a raised white cell count ($37.1 \times 10^9/l$) and lymphocytosis ($22.2 \times 10^9/l$). After admission to hospital she gradually deteriorated, with increasingly frequent paroxysms of coughing associated with cyanosis, and became increasingly tired. Intubation by experienced anaesthetists was achieved only after several attempts. During this time she had a short convulsion, which was treated with phenobarbitone.

She was treated with mechanical ventilation and sedated with intravenous propofol at a rate of 10 mg/h. After four days her serum was severely lipaemic; the propofol infusion was immediately stopped. Despite this lipaemia there was no evidence of acidosis or clinical evidence of haemodynamic compromise.

The child required 16 days' ventilation and there was concern about her neurological status after extubation, but she made an excellent recovery; at review at 21 months of age she was developing appropriately for her age.

In many ways this case is similar to those reported by Parke and colleagues, but there was no acidosis before serum lipaemia developed. The recognition of lipaemia and early cessation of treatment with propofol may have contributed to this child's recovery.

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- 1 Parke TJ, Stevens JE, Rice ASC, Greenaway CL, Bray RJ, Smith PJ, et al. Metabolic acidosis and fatal myocardial failure after propofol infusion in children: five case reports. *BMJ* 1992;305:613-6. (12 September.)

Diagnosing maxillary sinusitis

EDITOR,—N P van Duijn and colleagues' paper on using ultrasound to diagnose maxillary sinusitis misses the point.¹ Focusing on the antrum as the source of nasal symptoms has never been reasonable, since Ewing and Sluder in 1900 pointed out that pain and headache due to nasal conditions may occur in the absence of purulent sinus infection.²

In the 1940s Wolff showed that the antrum itself was relatively insensitive and that the pain of sinusitis was more likely to be mediated by congestion in the middle meatus of the nose, which invariably accompanies maxillary sinusitis.³ Recent advances in endoscopic diagnosis have confirmed this.⁴ Using simple outpatient rigid nasal endoscopy, Levine found abnormalities in 58 of 150 patients with nasal and sinus symptoms; no abnormalities had been found on conventional ear, nose, and throat examination.⁵ Many of these patients had seen several physicians and had frustrating, longstanding symptoms. Such abnormalities cannot be diagnosed by ultrasound examination but can be treated successfully. Ultrasound examination of the antrum is not popular in Britain since a comparative study showed that it failed to improve on radiology in predicting the presence of fluid in the antrum.⁶ As van Duijn and colleagues state, the symptomatic borders between sinusitis and nasal pain are not clear; concentrating solely on confirming or excluding fluid in the antrum is not productive as absence of fluid is most probably a secondary phenomenon due to obstruction of mucociliary clearance pathways in the anterior ethmoid. What is important is to give patients with recurrent or chronic symptoms an endoscopic examination so as to diagnose the problem, be it maxillary sinusitis or not.

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- 1 Van Duijn NP, Brouwer HJ, Lamberts H. Use of symptoms and signs to diagnose maxillary sinusitis in general practice: comparison with ultrasonography. *BMJ* 1992;305:684-7. (19 September.)
- 2 Ewing AE, Sluder, G. Frontal headaches, apparently ocular, but really of nasal origin: on the nasal conditions found in these cases with especial reference to an abnormal relation of the uncinate process to the ethmoid bulla. *Trans Am Ophthalmol Soc* 1900;9:60-71.
- 3 Wolff HG. Mechanisms of headache. *Archives of Neurology and Psychiatry* 1943;50:224-32.
- 4 Stammberger H, Wolf G. Headaches and sinus disease: the endoscopic approach. *Ann Otol Rhinol Laryngol* 1988;97(suppl 134):3-23.

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- 6 Pfeleiderer AG, Drake-Lee AB, Lowe D. Ultrasound of the sinuses: a worthwhile procedure? A comparison of ultrasound and radiography in predicting the findings of proof puncture of the maxillary sinuses. *Clin Otolaryngol* 1984;9:335-9.

EDITOR,—As N P van Duijn and colleagues point out, the term maxillary sinusitis does not simply denote a cavity filled with pus.¹ It covers a range of disease from temporary obstruction of the sinus ostium by mucosal swelling of any cause to an acute exacerbation of a chronic pansinusitis. Ultrasonographic examination of the maxillary sinus, which van Duijn and colleagues used as "the gold standard," is non-invasive but is a crude means of defining pathology in the area of the maxillary ostium. It is maintenance of the patency of the osteomeatal complex (an area where the frontal, anterior ethmoidal, and maxillary sinuses have a common outlet) that is crucial in the health of all the sinuses. Obstruction can produce symptoms without any opacity or a fluid level. This may be why only 212 of the 441 episodes of sinusitis in the study were confirmed by ultrasonography. Michael Gleeson's point that facial pain attributed to sinusitis is often due to other causes is also pertinent.²

Van Duijn and colleagues draw attention to the 10% of patients whose symptoms persisted, half of whom were found to have persistent evidence of maxillary disease. Probably several of these patients had chronic rhinosinusitis, with affected ethmoidal sinuses, which had gone unrecognised. Allergic rhinitis as well as infection may contribute to the mucosal hypertrophy and sinus obstruction. If such patients do not respond to medical treatment, which may include measures to control their allergic rhinitis, antibiotics with a short course of topical decongestants, or a combination of these, then referral is warranted. Rigid nasal endoscopy allows outpatient inspection of the osteomeatal region and may indicate whether surgery is needed to clear the osteomeatal complex.³ Treatment directed solely at the maxillary sinus will leave many patients with residual disease.

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- 1 Van Duijn NP, Brouwer HJ, Lamberts H. Use of symptoms and signs to diagnose maxillary sinusitis in general practice: comparison with ultrasonography. *BMJ* 1992;305:684-7. (19 September.)
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Bone mineral measurements

EDITOR,—Kay-Tee Khaw and colleagues reported bone measurements adjusted for body mass index (weight/height²). This is an example of the growing use of the body mass index to normalise bone mineral estimates made by single photon absorptiometry, dual photon absorptiometry, and dual energy x ray absorptiometry.^{2,4} The rationale for using the body mass index, which is often used as a measure of adiposity, is unclear but is presumably related to thinness being a risk factor for osteoporosis and adipose tissue having oestrogenic properties.

There are potentially serious statistical pitfalls, however, in using the bone mass index adjustment uncritically. Numerous studies have shown that measurements of bone mineral content (in g or g/cm) and areal bone density (in g/cm²) are positively, and independently, correlated with body weight and height.⁵⁻⁷ This shows that, in general, bone mineral content and areal bone density are