dependence on imports for food and animal feeding stuffs from a world whose hungry multitudes (see 3) above) increase by 200,000 daily. How long can we rationally expect our own numbers to be maintained in this way, even at present levels? Surely they should rather not (over a period of time) be related to the carrying capacity of our land.

It is important to distinguish this from that of overcrowding, which, though related, is a less acute one in survival terms. It may indeed be that a greater number of people may be living in crowded cities. They can do so only so long as food production from all known and hypothetical sources on this finite space-ship earth can meet these increased numbers of their subjects. Stocked. Reducing the number of regretted pregnancies is essential, but may not suffice. Truly informed choices as to their completed family size must be made by every parent in the land in the light of the facts above. These should be brought to them by every available means of publicity and education. "Doctors have unique opportunities to encourage young parents to think responsibly about the size of their families. Both the quality of life and the structure of society at the end of this century will depend on the answers found to population problems in the next ten years" (B.M.J., 12 February, p. 391).

It is important therefore to find the right answers. Further discussions, about more than sickle cell screening projects and methods, are not nothing less than vital. I suggest that if the B.M.A. were to convene or support a symposium on this matter there would be widespread support for it and the potential to implement a programme. Perhaps it may be timed in relation to a "population day," which is planned by the Conservation Society and related bodies for early May, 1973. I am, etc.,

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Detecting Sickle Haemoglobin

Str.—Screening programmes for sickle haemoglobin by tests for haemoglobinopathies by methods that allow for the most accurate genetic diagnosis. Presently, the only such screening methods involve electrophoresis. It will be shown why primary screening should be performed with haemolysate tests, manual or automated. This thesis is contrary to that of a recent leading article (29 April, p. 246) and that of some other authors.

The leading article suggested that special apparatus and experience are required for electrophoresis and also that the preparation of haemolysates and of buffers may be a disadvantage where technicians are lacking. Although the importance of electrophoresis was recognized, the premise was offered that when cheapness, reliability, and the capacity for handling large numbers are the primary requirements the solubility test or some automated form may be preferred. Nevertheless, Autoanalysers require technical competence and service, and the preparation of buffers for solubility tests and for electrophoresis requires comparable chemical knowledge.

The leading article also referred to a solubility test that allegedly differentiates HbAS and HbSS genotypes, but it was not mentioned that this test does not discriminate HbAS, HbS/thalassaemia, HbSC, HBS/a, or any abnormal haemoglobin.

Electrophoresis and solubility tests may be properly combined in sickle cell screening programmes by primary electrophoresis followed by testing samples that have abnormal haemoglobins with solubility test. Thus, HbS, non-HbS sickle haemoglobins, many of the more than 110 abnormal haemoglobins, and β thalassaemia trait may be detected. Samples with haemoglobins that migrate in the region of HbS and that are negative for sickle haemoglobin (and samples phenotypedically HbSS) should be examined by the electrophoresis or other techniques for haemoglobin D, G, etc. Quantitation of HbaA1 and other haemoglobins and analyses for HbF are frequently indicated; other biochemical tests and pedigree analyses are often prerequisites for a final diagnosis. Genetic counseling is crucial in sickle cell screening programmes and is impossible without accurate genetic diagnoses. Solubility tests alone cannot provide this information.

A final overall dissent to the leading article is the implied licence for screening by personnel who have no technical skill. Proven scribes and geneticists are usually associated with similar deficiencies in sickle haemoglobin educational plans, genetic counseling, follow up, etc. The result has been psychological and socio-economic trauma that hampers diagnosis, and genetic counseling, and incepting counseling. The victims of such programmes would have been far better off if they had never been tested. I am, etc.,

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Dental Caries: An Alternative to Water Fluoridation

Str.—The World Health Assembly in 1969 recommended member states to introduce fluoridation of community water supplies as a way of reducing the risk of dental caries, if the optimum level for protection against dental caries. A summary of the scientific basis for this recommendation is given in the monograph published by the W.H.O.1 and it is stated that this document is fully representative of informed scientific opinion throughout the world.

Fluoride ion is readily absorbed from the gastrointestinal tract. Any excess fluoride is speedily cleared from the blood, and readily excreted by the kidneys. In gross excess fluoride may give rise to skeletal fluorosis. The precise mechanism by which fluoride projects against caries is still unsettled.

In order, however, to be effective, and in order to carry public opinion with it, any such addition of fluoride should have regard to the following considerations: (1) it should be safe, and given in precise dosage; (2) it should be given only to the individuals who can benefit from it; (3) there should be no element of compulsion—those (or their parents) who do not desire fluoride should be able freely to decline participation in any scheme; (4) the use of fluoride should not add to the pollution of the environment; and (5) the relative costs of various vehicles for fluoride are of importance.

The compulsory fluoridation of the general drinking water does not conform with these conditions.

The effect of fluoride on the teeth of adults is minimal. Indeed some authorities would say it has no effect on adults, whose dental troubles are mostly periodontal. The question therefore arises whether some other vehicle might be used for fluoride. Milk has been considered as such a valuable vehicle.

Like water it is a fluid, and when drunk as such there may also be a local action in the mouth cavity. It is also the food most universally given by pregnant women, infants, and children during the vital period of tooth formation and development. Milk is also a source of calcium and phosphorus which together with vitamin D are required for the hardening of strong. Milk has been used in the other words, milk is a major component of the diet at precisely the times in life when fluoride has its greatest effect—childhood, pregnancy, and the nursing period of the mother.

It was at one time thought that the addition of fluoride to milk might result in inadequate absorption of the fluoride because of the formation of insoluble calcium fluoride. The work of Ziegler2 makes it clear that this is not so and that absorption of fluoride when given in milk is good. If, therefore, fluoride can be given in carefully controlled doses to expectant mothers, infants, and children the fluoride will be given to the right recipients at the right time in the proper dosage. Parents who have a conscientious objection may withdraw their child from the scheme.

Projects of this kind have in fact been carried out successfully in the United States by Rusoff and others,1 in Japan by Inamura,1 and in Switzerland by Ziegler.3 When milk has been used it has been in the same proportion of one part per million—the level at which it is placed, when the local authority approves it, in the public drinking water. In all these projects it has been shown that dairy products that do not contain milk in children has been strikingly reduced.

It is suggested that the adoption of similar projects in this country, assisted by regular dental inspection at schools, would be a potentially useful measure and which might meet the criticisms of those who object to fluoridation of the general water supply.—I am, etc.,

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Asian Immigrants

Str.—Can we be sure that adequate arrangements have been made for the medical examination of the Asians about to descend upon our shores? Can we be sure that the comodation of those undergoing tests, the results of which are not known immediately,