demographic literature describing the widely observed phenomenon of moderate increases in fertility preceding long-term fertility declines, and claims that such fertility increase is the principal driving force of population growth in the periods of historical and contemporary demographic transition. This is to ignore conclusions in the very sources she quotes that mortality decline has been far more important in the long run. She criticizes the widely held belief that female education is a cause of fertility decline, pointing out that it is based on correlational evidence, and claims that female paid employment is the most important factor. She does not admit that the evidence for this is also correlational, much less widely observed, statistically weaker and harder to interpret because of timing and selection effects.

These books raise some of the difficult questions about present equity and future welfare that cannot be ignored, even by those who profoundly disagree with the authors' policy conclusions. But there are many other distributional issues that are important in population–environment relationships, quite outside the blame allocation debate. If 'luxury' consumption is reduced, how can current economic systems be adapted to cope with this and still generate enough surplus to be invested in environmental protection measures, including effective birth-control programmes? If certain kinds of industrial activity have to be curtailed, how can this be done most equitably with respect to employment, so that the largest possible fraction of the population can still afford to purchase essential products? Neither Hardin nor Abernethy considers these important issues.

Both authors concentrate on the threat that population growth in less-developed countries poses to the standard of living in the United States, whereas the threats to the local environments and social fabric of countries actually experiencing these growth rates are of a far higher order of magnitude. By contrast, the global consequences of luxurious levels of consumption in more-developed countries, such as atmospheric warming, are likely to be much more severely felt in less-developed countries. Elitist calls for isolationist measures are a godsend to those still reluctant to face the real problems of population growth, and are likely only to polarize the debate in sterile ways. How fortunate that there are economists, biologists and demographers engaged in a more productive dialogue about problems that can best be faced jointly by developed and developing countries. □

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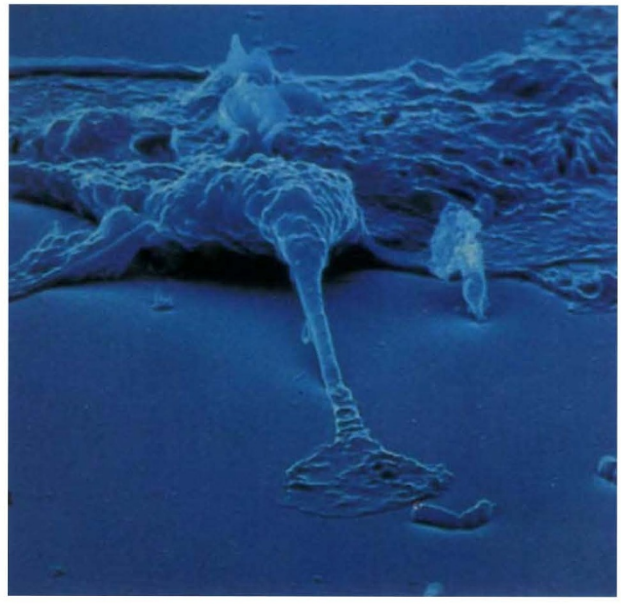
Video cytokine

F. Y. Liew

Interferon Gamma: The Immune Interferon. A video produced by Cambridge Scientific Films on behalf of Boehringer Ingelheim. *VHS PAL colour; running time, 23 minutes; distribution details available on application to Boehringer Ingelheim.*

RESEARCH laboratories rarely indulge in the art of video, but when they do, the result can be as informative and colourful as any good seminar. An unusual collaboration between the pharmaceutical company Boehringer Ingelheim and Dr Greg Bancroft and his team at the London School of Hygiene and Tropical Medicine has now produced this highly instructive film about interferon gamma and its important role in immunity against infection. The programme is replete with Lennart Nilsson's arresting electron micrographs, an example of which is shown here.



Fatal attraction — a macrophage prepares to engulf a bacterium.

Since the discovery of interferons by Alec Isaacs and Jean Lindenmann in 1957, great hope has been held out for their use as therapeutic agents. Alas, the promise of this diverse family of glycoproteins has not yet been fulfilled. Secreted by virus-infected cells, they protect noninfected cells from infection by inducing host cell enzymes that affect the transcription and translation of viral genes. They also have immunoregulatory functions, interferon gamma in particular.

Interferon gamma — dubbed the 'immune interferon' — is secreted mainly by antigen-activated T cells in inflammatory and autoimmune diseases. In addition to its antiviral effects, this interferon induces the expression of class I and II major histocompatibility molecules involved in antigen presentation, modulates immunoglobulin and cytokine synthesis, increases the microbicidal and tumoricidal activity of macrophages, promotes the differentiation of a number of myeloid cell lines and inhibits cell growth. It seems also that the increased production of interferon gamma during infections can promote many diseases. For example, interferon gamma is essential for the induction of type 1 T helper cells and for the inhibition of proliferation of type 2 T helper cells, cells that help in the synthesis of immunoglobulin E, a mediator of hypersensitivity reactions in allergic diseases. Interferon gamma is also produced by natural killer cells, which can kill cells in the absence of antigenic stimulation, a finding made by Bancroft and his colleagues. These are just a few of a host of functions of this versatile cytokine.

By combining excellent narration and photography, this video succeeds in presenting a great deal of detailed information clearly. The package is intended primarily as an educational aid for clinicians, but it should also prove to be a useful revision aid for undergraduates. Further information about the mechanism of induction of interferon gamma and its role in the regulation of type 2 T helper cells would capture the interest of a more advanced audience; and the latest results on the clinical trials using interferon gamma to treat hepatitis, leishmaniasis and leprosy would make the programme even more appealing to clinicians. But these are mere quibbles in the face of the major achievement — the video's elegant and concise presentation of so much complex information, a feat so rarely seen in television science programmes. □

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