

Out of sequence

SIR — I have followed the series of letters on nucleotide sequences with interest. Many of the difficulties encountered are easily explained by the following fundamental principles:

First law: DNA polymerase is much better than humans at proofreading. Corollary: The mutation rate is much higher in press than *in vitro* or *in vivo*.

Second law: Any sequence that is numbered is numbered incorrectly.

Third law: Any relationship between the length of sequence presented in a paper and the length actually determined is purely coincidental.

Fourth law: Identical sequences published by identical authors will not be identical. Corollary: If an explanation is given, the claimed differences and the actual differences will differ.

Fifth law: Journal articles, like mitochondria, use different genetic codes.

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Whaling quotas

SIR — S.J. Holt (*Nature* 14 July, p.110) states that evidence for the recovery of exploited species of whales comes mainly from modelling. Happily, there is much empirical evidence, from a large body of census information on the Californian grey whale *Eschrichtius gibbosus*, much more recent but well-documented information on humpback whales *Megaptera novaeangliae* especially in the north-west Atlantic, less-well-documented observations of recovery of blue whales *Balaenoptera musculus* in the Gulf of St Lawrence, and incipient recovery of several populations of right whales *Eubalaena* sp. in various sea areas, to which there was devoted a recent symposium under the aegis of the International Whaling Commission.

Two recent papers^{1,2} document the recovery⁴ of harp seals off eastern Canada from previous over-exploitation, since an effective quota was applied in 1972. One study is based on capture-recapture tagging, the second is a modelling exercise.

Opponents of a marine mammal fishery such as Holt argue that no exploitation is permissible unless cut-and-dried evidence is available on the competence of its management. It is probable however that no such evidence can ever be marshalled, since all ecological evidence is imprecise and therefore open to criticism.

The real test seems to be an adequate incentive for the government concerned to manage. But how can we measure incentive? I suggest an answer based on the involvement of the citizens of the country concerned. Thus both the Soviet Union, in the White Sea, and Canada, on its northern

Atlantic seaboard, have successfully managed (that is allowed to increase) their harp seal populations in recent years. Norway, in the western Barents Sea, has not. In winter, the Norwegian coast is ice-free all the way to East Finmark, while the White Sea and the Canadian north-east coast are ice-bound.

Both the Soviet Union and Canada therefore have large numbers of inshore fishermen, with small capital resources, who need the shore fishery of harp seals in winter *in perpetuo*. Since the harp seals leave the area in summer, summer fisheries are not affected by them. There is therefore a strong incentive for these governments to maintain the seal hunt.

Norway by contrast has a strong off-shore fishery in the Barents Sea which views seals as competitors, while harp seals coming from the east get in the inshore fishermen's nets and are therefore a nuisance rather than a resource. Norway's seal hunt from Tromsø and Aalesund is a distant-water hunt which is more highly capitalized and perhaps therefore more easily changed to another enterprise; at any rate the fishing industry must outweigh the sealing industry in value of products.

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1. Bowen, W. D. & Sergeant, D. E. *Can. J. Fish. Aquat. Sci.* **40**, 728-742 (1983).
2. Roff, D. A. & Bowen, W. D. **40**, 919-932 (1983).

The patents jungle

SIR — The news item "French patents — Fanning fires of invention" (*Nature* 18 August, p.577) contains two distinct errors. First, in referring to France and Japan, the author states: "The patenting process in these two countries is roughly comparable. There is essentially no assessment or weeding out of applications in either country — anyone who applies (and pays) receives."

The Japanese system is in fact a far cry from the French. A substantive examination must be carried out in Japan, and if the applicant does not request it in the prescribed time, the application is deemed to have been abandoned.

The examination is far from being a mere formality. In fact, it often results in a rejection in the first instance. Japanese examiners are known to reject the application on the ground of obviousness after citing a textbook, or other well known reference, that does not even mention the problem to which the inventor has addressed himself. It is believed that Japan is particularly hard on foreign applicants and this may partly explain why only 30,000 patents were granted on foreign inventions in 1980, according to the author.

The second error is found in the statement: "However, the US patents system is

somewhat like the British — an application is examined and judged only if challenged." In fact British and US applications are never granted without examination. In the United Kingdom, both preliminary and substantive examinations must be carried out (at the request of the applicant), and it is essentially the result of the latter that determines whether a patent will be granted. The procedure is generally similar in the United States, except that once the application has been filed a single examination follows automatically within a certain time.

With regard to the imbalance between patents granted to national as compared with foreign applicants in West Germany, in accordance with the law of that country, an employer must make an early decision on any invention submitted to him by an employee in order to give the employee the opportunity to apply for patent protection himself if the submission is declined. This means that the employer is often compelled to accept the submission and file an application as a mere precaution. Not infrequently the subject-matter does not deserve to be called an invention. The West German patent system has indeed the reputation of being "rigorous", but it has nevertheless let through its fair share of trash. It follows that the number of patents granted to German nationals and the reputation of the German Patent Office are not necessarily good indicators that the said patents "probably represent a real national advantage".

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Kahn's legacy

SIR — I take exception to the laudatory tone of your "obituary" of Herman Kahn (*Nature* 14 July, p.102). He was, as you state, a man of exceptional gifts, but he used these gifts to provide a rationality for what I consider to be irrational ends. He never took cognizance of people, of ordinary persons, but of national states; he never discussed politics but wrote of governmental policies. He always wrote of categories and never mentioned the daily lives of people who are only on this Earth once. I consider Kahn essentially a coward, for he never wanted to acknowledge to himself or to others that his "unthinkable" was not nuclear war, but the murder of millions of innocent people. He, and others like him, were always play-acting, and their "realism" was in trying to make us believe their plays were the real thing. I, for one, and I consider myself a charitable man, do not regret his passing.

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