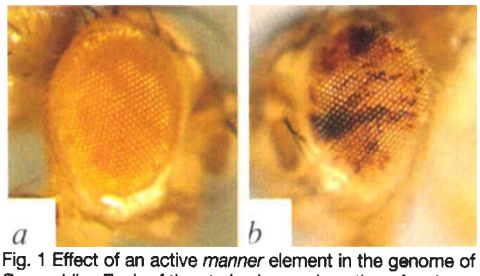

Fig. 1 Effect of an active *manner* element in the genome of *Drosophila.* Each of the strains has an insertion of an inactive *mariner* element in the promoter of the *white* gene, which results in peach-coloured eyes. In the strain labelled *a*, there is no active *mariner* element elsewhere in the genome, and the eyes are a uniform peach colour. In strain *b*, an active *mariner* element is also present, and the eyes have multiple patches of red resulting from cell lineages in which the inactive element was excised by the *mariner* transpose.

frame coding for a transposase of 345 amino acids[3]. The *mariner* transposase is a member of a large superfamily of proteins that executes ion-dependent polynucleotidyl transferase reactions[4]. Other members of the superfamily include the transposases of diverse transposable elements and the integrase domains of a number of retroviruses, such as human immunodeficiency virus. The superfamily is characterized by the presence of an ion-binding domain known as the "D,D(35)E" motif, which includes two conserved aspartic acid residues (D) and one glutamic acid residue (E) separated by 34 or 35 amino acids[5]. The *mariner* elements have a variant of this domain: D,D(34)D.

All transposons with the D,D(35)E motif seem to work by first creating a scission in each DNA strand to generate a reactive 3' hydroxyl at each end of the element[4]. This mechanism makes it plausible that an MLE could indeed serve as a hotspot for the initiation of homologous recombination. Reiter *et al.*[1] initially had a different explanation. Flanking the 1.5-Mb duplication/deletion region are two large ~30 kilobase (kb) repeats called the CMT1A-REP repeats, which are highly homologous but not identical. Theoretically, the unequal crossing-over could take place anywhere within the misaligned CMT1A-REP repeats. However, analysis of restriction sites differing in the repeats indicated that, in the majority of patients examined, the site of exchange took place within a 1.7-kb fragment. The initial hypothesis was that the 1.7-kb fragment would turn out to have greater sequence similarity than other regions within the CMT1A-REP repeats, thus accounting for the increased recombination. This was not found. Nevertheless, the 1.7-kb fragment is a potent hotspot showing approximately 50-fold more recombination, relative to its length, than

touching base

How about those Cowboys?

"If ever an announcement symbolizes the future of health care possibilities, [this] is it," says David M. Richards. President of the University of North Texas (UNT) Health Science Center at Fort Worth (near Dallas). A company called GeneLink, based in New Jersey, has selected the UNT health science center's DNA Laboratory as the storage site for the nation's first commercial, non-military DNA repository. For a fee of $175, GeneLink will store a sample of an individual's DNA for an initial period of 25 years (with an option for longer), and is appealing to families who have lost a relative to a suspected genetic disease. The UNT laboratory's director, Dr Arthur J. Eisenberg, says: "A family could, over many generations, go back and trace their medical history - trace a genetic defect that potentially can be corrected or treated in the future." GeneLink offers a simple-to-use DNA isolation kit and will store up to 5 mg of DNA, which can then be retrieved upon request. It also provides a toll-free information resource (1-800-558-GENE), but stresses it will not offer genetic diagnoses itself. But Benjamin L. Cohen, executive dean at UNT, warns of the potential ethical dilemmas that this venture engenders. "Once we are able to prevent terrible diseases," says Cohen, "do we really want millions of 120-year-old people walking around?"

Operation Task Force

The potential to test individuals for predisposition for a number of disorders is growing rapidly with current advances in disease gene identification. The impact of such tests is certain to have a profound effect on everything from an individual's health insurance status to social status, given the risk of genetic discrimination. To investigate the development and provision of genetic tests in the United States, the Task Force on Genetic Testing, under the auspices of NIH-DOE Working Group on Ethical, Legal and Social Implications of Human Genome Research, is seeking information on the experiences - both good and bad - from individuals who conduct, order or receive results from genetic tests that predict or provide information on disease risk, carrier status, prenatal diagnoses and newborn screening. The information requested ranges from data on consent to confidentiality to conflicts of interest. Further information is available from Neil A. Holtzman, Chair, Task Force on Genetic Testing: (Tel) 410-955-7894; (Fax) 410-955-0241; (email) holtzman@welchlink.welch.jhu.edu.

High Society

Human genetics in the United Kingdom should receive a boost with the recent launch of the British Society for Human Genetics. The idea, says founding chairman Andrew Read (Professor of Human Genetics at the University of Manchester) is to have a British equivalent of the American Society of Human Genetics. Initially, membership of the BSHG will be comprised of the 1,250 members of four existing clinically-oriented genetics societies. However, the society is open to everybody professionally involved in human genetics in the UK. Read says: "Human genetics is never out of the news, and it needs a powerful voice. I hope the BSHG will be the voice for human genetics as a whole, and I encourage all human geneticists in the UK, both practitioners and researchers, to make sure that it is". The BSHG will focus on communicating genetics research to professionals and addressing genetics issues of public interest, and plans to hold its annual scientific conference in York on September 15-18, 1996. For further details contact Mrs Ruth Cole at the BSHG office, Clinical Genetics Unit, Birmingham Women's Hospital B15 2TG (phone/fax 0121-627-2634).

Now Starring at the Rockefeller ...

The Rockefeller University in New York has established The Starr Center for Human Genetics, one of the largest of its kind in the United States. The new interdisciplinary institute is to be founded with a $5 million grant from the Starr Foundation and will be headed by Jeffrey Friedman, an investigator of the Howard Hughes Medical Institute and best known for his discovery of the *obese* gene in 1994. The emphasis will be on the role of genetic factors in complex diseases such as diabetes, heart disease, mental illnesses and cancer. For example, the centre has collected some 1,200 DNA samples from adults native to the Federated States of Micronesia, who have a high prevalence of diabetes and hypertension due to combinations of risks associated with diet, exercise and genetic predisposition. The Starr Center is one of four new institutes being set up by the university, including centres specializing in neuroscience and Alzheimer's disease. Founded in 1901, the Rockefeller Institute for Medical Research was the first biomedical research centre in the United States. In 1944, Rockefeller scientists Oswald Avery, Colin McLeod and Maclyn McCarty showed that DNA is the genetic material.

The Laws of Nature

The new-look *British Medical Journal* recently featured an entertaining collection of essays on the subject of improving the human form (*BMJ* **311**, 1669–1676; 1995). Among the contributors was Steve Jones, the well-known Welsh malacologist and author of the excellent book, *The Language of Genes*. Jones suggests that tinkering with the genome is not half as much fun as tampering - purely hypothetically - with the laws of nature. What if one could ablate Francis Galton's 'regression to the mean', the observation that the diversity of phenotypes among offspring tends to be narrower than those of the parents, as the effects of specific genes are 'diluted out'? "Tall parents would have even taller children," Jones writes, "and the offspring of intellectuals would be quite intolerably smart. And, of course, all the progeny of skin specialists would be brain surgeons." However, Jones concludes gloomily that this experiment of nature has in fact been underway for the better part of two decades, as the rich become wealthier and the healthy become fitter, at the expense of their poorer and sicker brethren. Is this evidence, perhaps, for a 'flat tax'?