The 199 men in the experimental group were fed a diet low in saturated fats and containing 85 g of soya bean oil, chosen because it is highly unsaturated and has been shown to cause a lowering of the serum cholesterol. The men in the control group were fed their normal diet. The ratio of saturated fat to unsaturated fat was approximately 1 : 2 for the experimental group, but was 6 : 1 for the control group.

The patients had regular check-ups, their serum cholesterol concentrations, blood pressure and ECGs were measured and their smoking habits and working records investigated. About half the men were on the diet for four years or more; some stayed on it for six years, others for only two years.

Both groups had a starting cholesterol concentration of about 272 mg/100 ml. In the experimental group the concentration fell in the first six months to 213 mg/100 ml., a decrease of 22 per cent. The concentration of cholesterol in controls fell to 259 mg/100 ml., a decrease of 6 per cent. These concentrations tended to increase slightly during the trial period, but the difference between the two groups was maintained.

Sixty men on the test diet suffered a relapse during the trial compared with seventy-four of the controls. Forty of the relapses were "major", that is definite reinfarctions or deaths from coronary heart disease, compared with thirty-nine in the controls. These differences are not significant; relapses were not related to the initial concentration of cholesterol or to a change of concentration during the trial. A comparison has been made with the results of a similar trial in Oslo. The initial concentrations of cholesterol of the patients in Oslo were greater than the concentrations measured in London; it is interesting that in Oslo, those with highest initial concentrations of cholesterol produced the highest incidence of infarction relapses. There was no indication, however, in Oslo or in London that the diet in any way affected mortality.

CONNECTIVE TISSUES

Collagen Club

from a Correspondent

THE fourth meeting of the Collagen Club took place on September 20 at the National Leathersellers College, London, and was attended by some thirty members. Organized by Dr J. E. Eastoe, the proceedings took the form of a "Workshop Discussion". The morning session was devoted to descriptions of the isolation of collagen, and special physical techniques. Dr I. Freeman (Manchester) spoke about the isolation of collagen from tissues of the eye (cornea and sclera), and Dr G. Herring (Oxford) dealt with bone. These two very different types of tissue create special problems and both speakers gave a useful account of the practical steps for producing good preparations.

Mr C. H. Pearson (Bradford) described the technique of differential thermal analysis. This records endothermic or exothermic changes with rise of temperature which provides useful information regarding bond breakage and alteration of shape in macromolecules. The technique has been used for various types of collagen and is particularly useful for the examination of complex tissues such as intervertebral disks.

Drs J. Weiss and J. Bowden (Manchester) described a new method for localizing particular amino-acids in electron micrographs of collagen. A film is treated with a reagent which is specific for an amino-acid and which labels the side chain with a chelating group. This can then fix a heavy metal to give an electron-dense derivative. In this way, treatment with the Sakaguchi reagent, and later with an iron salt, enables the arginine-rich zones in the collagen fibril to be demonstrated. Delightfully simple in conception, this method is not without practical difficulties, but has great potentiality.

The afternoon session, led by Drs J. E. Eastoe, R. Consden and J. H. Bowes, was devoted to a general discussion of amino-acid analysis and to a consideration of tyrosine and hydroxyproline.

PHAGE GENETICS

λ Phage Lysogeny

from our Cell Biology Correspondent

IN the current issue of *Proc. US Nat. Acad. Sci.* (**60**, 1282; 1968), Ptashne and his colleague Hopkins report another step in their analysis of the function of the λ phage repressor. They have proved that the repressor protein binds to at least two distinct sites in the immunity region of the λ phage DNA and in so doing independently controls two adjacent operons. As Ptashne has already shown, the λ phage repressor is a protein, coded for by the C_1 gene, which *in vitro* binds specifically to λ DNA and presumably does the same *in vivo* and so blocks transcription of RNA and expression of the phage genome.

The DNA binding site, the immunity region, is only a few per cent of the total λ genome and it is flanked on either side by genes of two operons. Transcription of these two operons proceeds outwards from the immunity region in opposite directions, which means that the genes on one side (the left) of the immunity region are transcribed off one strand of the DNA duplex (the Watson strand) while genes on the other side (the right) of the immunity region are transcribed off the complementary DNA strand (the Crick strand). The products of both these operons appear to be essential for the expression of the rest of the genome. The question is whether the repressor binds to one or two sites in the immunity region, and consequently, whether the control of the two operons adjacent to the immunity region is coupled or independent.

To answer this, Ptashne and Hopkins exploited a mutant strain of λ phage, λ virulent, so called because it grows in lysogenic bacteria and thus must be unaffected by the λ repressor. Using DNA from this strain in a repressor binding assay, they have found that repressor binds at least ten times more readily to wild type DNA than to the mutant DNA. In fact, the λ virulent strain has three separate mutations, v_1, v_2 and v_3, all of them in the immunity region and all of them decreasing the affinity of repressor for the DNA. By using strains containing only one or two of these mutations (they can be separated with the exception of v_1 which has not yet been separated from v_3) in complementation experiments, they have found that mutation v_2 allows synthesis of the left hand adjacent operon, containing the *N* gene, but not the right hand operon. The opposite is true for mutant v_3, which only allows transcription of the right hand operon containing the gene *O*. Thus the v_2 and v_3 mutations