homologous groups that have arisen coincidentally in Nature or these PPLO are in fact stable *L* forms of certain members of the Lactobacillaceae.

To characterize further these fermentative PPLO and also aid in the selection of possible bacterial parents, a search for enzymes common to the armory of the *Streptococci* was made. DNase activity was sought preferentially because the DNases are well characterized and because of the possibility of finding and characterizing a specific cellular enzyme inhibitor. Also, in particular, a knowledge of DNase activity would be important in preparing DNA for characterization.

This communication describes deoxyribonuclease activity found in three fermentative strains[2] of PPLO: Sewage *A* (*M. laidlawii* A), California calf, and kid strain of goat arthritis PPLO. Organisms were grown at 37° C in Difco trypticase soy broth adjusted to *p*H 7·8–8 and (except sewage *A*) supplemented with 10 per cent horse serum. Cells were gathered at 36–48 h, washed once in 0·89 per cent saline, disrupted by three or more cycles of freezing and thawing, and taken up in *tris*–hydrochloric acid buffer (0·05 M, *p*H 7·5); a supernatant (15,000*g*, 30 min) was examined for activity. Enzyme activity in culture supernatants of sewage *A* was partially purified by ammonium sulphate fractionation.

Initially activity was assayed by the alcohol precipitation method of McCarty[3]; quantitative assays were by viscometry[4]. Enzyme activity was calculated from the slope obtained by plotting, on semi-logarithmic paper, the difference between flow-time at intervals during the reaction and the flow-time of solvent, against time. Usually five points were obtained and gave straight lines for at least 12–15 min. The activity of PPLO DNase was compared with a crystallized standard DNase I (Worthington, 1 methyl green unit per mg[5]).

The *p*H optimum is 7–8 in *tris*–hydrochloric acid or barbital–hydrochloric acid buffer. A divalent cation requirement is satisfied by Mg^{++} or Mn^{++} (0·0075 M) while disodium ethylenediamine tetraacetate completely blocks activation; activity is restored by addition of Mg^{++}.

Activity requires protection (provided by 0·01 per cent gelatin) and is destroyed by heating for 5 min at 60° C. Dialysed ammonium sulphate fractions are stable for at least 4 months at −10° C.

The deoxyribonuclease from sewage *A* has been examined more extensively. Activity of culture supernatants is equivalent to approximately 0·3 μg of crystalline pancreatic DNase per ml. Calf thymus and salmon sperm DNA are attacked at the same rate without a lag period.

Inhibition of DNase activity with boiled cell extracts of sewage *A* and *E. coli* has been obtained, but only to a level of 30 per cent so far; yeast RNA (0·3 mg/ml.) inhibits 50 per cent of the activity. The inhibitory effect is abolished by digestion (37° C for 30 min) with RNase (50 μg/ml., heated 80° C for 10 min). Treatment of crude culture supernatants with RNase does not increase activity.

Because of the rapid loss of viscosity, the enzyme would appear to be an endonuclease, and resembles the RNA inhibitable DNases of *Streptococci* and *E. coli*.

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PSYCHOLOGY

Sex Differences in Hemispheric Asymmetries of the Human Brain

The minor and seemingly random morphological differences between the two hemispheres stand in contrast to the marked and consistent differences in their functions, as reflected, for example, in the specialization of the left hemisphere for speech[1]. Some evidence that unilateral removals of cerebral tissue have different effects in the two sexes[2] suggests that relationships between morphology and function might become apparent if observations on cerebral asymmetry were analysed for each sex separately. Of interest in this respect is a recent investigation by Conel of a series of eight brains from 4-year-old children[3]; no consistent feature was apparent in the differences between the hemispheres. However, if the sex of the children is taken into consideration, two noteworthy differences emerge. Conel's Table IX shows that in 4 out of the 5 female brains the amount of myelination is greater in the left FA_γ-hand area than in the corresponding area on the right, while in the 3 male brains this difference is reversed. In Table X the number of exogenous fibres in layer I of areas FA_γ and PB is greater on the right in the 4 female brains for which data are provided, but greater on the left in 2 of the 3 male brains. Neither of these comparisons reaches acceptable levels of statistical significance, but the importance of, and the difficulty in obtaining, these limited data may warrant a conjecture. Could these anatomical differences be related to the finding that side differences in the tactual thresholds on the thumbs of young children are not the same for the two sexes[4]?

Some earlier research may also be used in speculating about sex differences in cerebral asymmetry. An investigation of variations in cerebral venous drainage suggests that the right vein of Trolard is larger than the left in girls, but not in boys[5]. Since this is often the major vein in the hemisphere opposite to that used in speech[6], is it possible that the differences in venous drainage are related to the superiority of girls over boys in certain verbal skills[7]?

These questions are not presented as being derived from relationships which have been reliably demonstrated, but are posed as questions deserving systematic research. The observations indicate that the sex of patients is a factor which should be heeded in investigations of the laterality of cerebral function.

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Formation of Higher Habits

Almost since the beginning of the systematic study of performance experimenters had noticed the tendency for subjects to combine 'elements' into 'groups' for perceptual and motor purposes. One of the classic studies in human learning is the series of experiments on morse-learning by Bryan and Harter[1], who showed some sixty-five years ago that the process of learning was arrested periodically and that 'plateaux' appeared