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PERIODICALS

American Journal of Human Genetics

June 1953. Vol. 5, No. 2.—*Some methods of estimating the inbreeding coefficient.*—By C. C. Li and D. G. Horvitz.—This article describes seven methods of estimating the inbreeding coefficients from observed data and gives a numerical example to illustrate the various methods.

The genetics of rheumatoid arthritis.—By R. M. Stecher, A. H. Hersh, W. M. Solomon and R. Wolpaw.—This study is based on 224 patients with rheumatoid arthritis compared with 488 patients who were free from this condition. Careful family histories were taken for both groups. Few of the relations who were said to be affected were actually examined, but it is thought that the diagnoses were reasonably accurate. Excluding all individuals under fifty years, the proportions affected were 4·4 per cent of fathers, 6·7 per cent of mothers, 2 per cent of brothers and 6·9 per cent of sisters of the rheumatoid arthritis patients. For the control group the percentages were 0·69 for all male and 1·1 for all female relations over fifty years of age. The authors discuss possible genetic mechanisms which would account for these findings and suggest that recessive inheritance with 70 per cent penetrance or dominant inheritance with 50 per cent penetrance would fit the findings. (The high rates of penetrance are based on the sibs only and assume complete ascertainment. A dominant gene with 10 per cent penetrance is perhaps a better hypothesis.)

Multiple cutaneous and subcutaneous lesions occurring simultaneously with hereditary polyposis and osteomatosis.—By E. J. Gardner and R. C. Richards.—The authors describe the third of a triad of signs, multiple cutaneous and subcutaneous lesions, found in a family from Utah. The other two signs are multiple polyposis and multiple osteomatosis, which the authors have described in earlier papers in this *Journal*. All three signs are clearly manifestations of the same dominant gene. The tumours contained both epidermal and connective tissue elements.

Elimination of recessive lethals from the population when the heterozygote can be detected.—By S. M. Gartler.—The author calculates the eugenic effect of forbidding marriage between carriers of a recessive lethal gene, assuming that a method has been found of detecting the carriers. In essentials the effect would be that the population would move towards an equilibrium in which there were slightly more carrier than normal individuals. The proportion of affected children would be half the mutation rate, that is, half the number found with random mating. (This paper is useful in showing that eugenic advance must come from the restriction of the fertility of the carriers of recessive and lethal genes and not from the restriction of marriages between carriers.)

Data pertaining to the population dynamics of sickle cell disease.—By J. V. Neel.—It has been suggested that some negroes who are homozygous for the gene responsible for sickle-cell hæmoglobin are prevented from developing anæmia by modifiers. The author has investigated this by comparing individuals and control of the same background. He found that there was no relation between having anæmia and an ethnic rate based on negro traits of skin colour, hair form, lip and nose structure. Similarly, within the group with anæmia there was no relation between the severity of anæmia and the ethnic rating. In forty-nine families there were seven exceptions to the rule that both parents of a child with sickle-cell anæmia showed the sickle trait. In three instances the exceptional parent was heterozygous for the gene responsible for hæmoglobin c. In one instance the child was illegitimate. In three instances the finding can best be explained by mutation.

An investigation of 69 cases of exomphalos.—By T. McKeown, B. MacMahon and R. G. Record.—In a series of sixty-nine the authors found that there was a tendency for exomphalos (herniation of the intestine in the new-born) to become more common as the mother gets older. On the other hand, there was no association with birth order when cases which also had anencephalus or spina bifida were excluded. They note that in less than half the cases was exomphalos the only malformation. The most common association was with anencephalus. In only one instance was another child in the family affected with exomphalos. The general incidence of this malformation was 0·31 per thousand births.

The incidence of hare lip and cleft palate related to birth rank and maternal age.—By B. MacMahon and T. McKeown.—Fogh Andersen found no association of hare lip and cleft palate with maternal age or birth order. The authors, however, found that while there was no effect of birth order there was an effect of maternal age and this was still the case where cases with other malformations are excluded. This maternal age effect was seen where the malformation was hare lip alone or hare lip with cleft palate, but not with cleft palate alone. The authors note that this finding reinforces Fogh Andersen's contention that malformation hare lip with or without cleft palate is biologically distinct from cleft palate alone.

September 1953. Vol. 5, No. 3.—*Regular two-allele and three-allele phenotype systems. Part I.*—By C. W. Cotterman.—In describing the relations between genetic constitution (genotype) and observed development (phenotype) such terms as dominance and over-dominance are satisfactory for two-allele systems. The author shows, however, that such terms are quite inadequate to describe all the possible relations between genotype and phenotype for three

or more alleles. The author illustrates ways of describing all possible relationships for three-allele systems.

Contributions of heredity and environment to manifestations of psycho-neurosis.—By Gordon Haskell.—The author describes a single family in which psycho-neurosis seems to be inherited as a simple dominant over four generations. The manifestations of the neurosis were somewhat varied but were usually obsessional. Males and females are affected equally.

Distribution of blood groups among the Eskimos, Indians and Whites of Western Alaska.—By F. P. Pauls, Betty B. Victors and Marie W. Dodson.—The ABO blood groups of the Eskimos in Alaska are somewhat similar to those of Whites. This has been attributed to interbreeding with Whites. The authors show here that this is not the case, since the Eskimos in Alaska have no A_2 and a gene frequency of M of 0·8 compared with 0·6 for Whites. The blood group frequencies are also given for Indians in the area and also for Eskimo-White and Indian-White hybrids. Eskimo-Indian crosses are exceedingly rare. There were marked variations in the frequency of B among Eskimos from different areas.

On the inheritance and development of clinodactyly.—By A. H. Hersh, F. DeMarinis and R. M. Stecher.—" Crooked " little finger may be due to incomplete ossification of the middle phalanx, short tendon or fused ossification. The first group are labelled clinodactyly. The authors report a genetic and radiological study of five families and conclude on the basis of these and of the similar families described by Bell that the gene responsible is an autosomal dominant with slight lack of penetrance.

Some general properties of recessive inheritance.—By C. C. Li.—The author makes a mathematical analysis of some of the properties of the inheritance of multiple recessive traits. He derives formulæ to cover the situation where any number of pairs of loci are involved.

C. O. C.

Annals of Eugenics

September 1953. Vol. 18, Part 2.—*The use of χ^2 in testing effect of birth order.*—By Max Halperin.—In testing the null hypothesis that an attribute is independent of birth order it is common to use the statistic

$$\sum_{i=1}^{k} (o_i - c_i)^2/c_i,$$

where o_i is the observed number, and c_i the expected number, in the i'th birth order. This statistic is normally assumed to be distributed as a χ^2 with k-1 degrees of freedom, k being the number of birth orders considered. It is demonstrated in the paper that the distribution is not in fact a χ^2. A new alternative test statistic is proposed which, although involving rather more computation, is shown to be asymptotically distributed as a χ^2 with k-1 degrees of freedom. Illustrative examples are given.

Urinary amino-acid patterns of some mammals.—By S. P. Datta and H. Harris.—The urinary amino-acid patterns of twenty-two species of mammals have been examined by the technique of partition paper chromotography, and a number of striking differences are evident. Some of these, like the excretion of methyl histidine, seem to be largely due to variations in diet ; on the other hand the occurrence of cystein-*S-iso*pentanol, while influenced by diet, seems typical of several of the Felidæ. The complex relations between the various patterns are discussed in some detail, but in view of the variety of factors involved it is a pity that some of the evidence is not described, or at least tabulated, in greater detail. For example, there is rarely any precise indication of the number of animals in any particular test, and one is sometimes left wondering whether a particular result is really " significant " or whether it is only a chance variation.

The fitting of the positive binomial distribution when both parameters are estimated from the sample.—By F. E. Binet.—Some mathematical remarks on the subject indicated by the title.

The general purpose sib-pair linkage test.—By L. S. Penrose.—A general purpose sib-pair test for " screening " data on autosomal linkage is described. It is considered to be accurate for rare recessive test factors at any rate. Penrose himself comments, " In setting out this material I wish to emphasize that, for precise work, more detailed calculations should be made. For example, even the sampling error, obtained by the present method, has been shown by Smith (1953) to be inexact except in the case of tables compounded from sibships each containing only one pair."

Quantitative studies on the urinary cystine in patients with cystine stone formation and in their relatives.—By H. Harris and F. L. Warren.—Patients suffering from cystine calculi in the renal tract are known to excrete large amounts both of cystine and of lysine and arginine. High excretion values are also frequently found in the symptom-free relatives of these patients.

In the present paper the urinary concentration of cystine and creatinine has been estimated for a series of twenty-seven patients with cystinuria and cystine stone formation, as well as for 205 of their relatives. A control series of 213 normal individuals was used for comparison.

The function $\log_{10}$ mg.cystine/g. creatinine, suitably corrected for age, was used as an index of cystinuria. Although the families, as judged by this index, appeared to be heterogeneous, a broad classification into two main types could be made. The first contained only two kinds of individual : those with high cystine excretion values and normals, showing a sharp segregation such as would obtain if affected individuals were homozygous for a rare recessive. The second group of families

showed no sharp distinctions, but was considered by the authors of the paper to show evidence of three overlapping distributions : low values ; high values ; and an intermediate class ; the latter two classes possibly representing individuals respectively homozygous and heterozygous for a rare mutant gene. There is some discussion as to whether the genes in these two groups of families would be allelic or at different loci, but further evidence is required before any decision is possible.

NORMAN T. J. BAILEY.

Phylon

Third Quarter, 1953, Vol. 14, No. 3.—This number of the Atlanta University Review of Race and Culture contains many interesting articles, which though not strictly of eugenic importance are important on the subject of race.

Marginality, conformity and insight.—By David Reisman.—This article should be of especial interest to Members of the *Eugenics Society* ; moreover, it throws amusing sidelights on such divergent authors as Edmund Gosse, Richard Wright and Stephen Spender.

A visit to the Africa of Dr. Albert Schweitzer.—By Clara Urquhart.—Racial tensions in Africa are chiefly caused by land-hunger and the unjust laws of the white man, which induce frustration and humiliation. The author describes Dr. Schweitzer as the most gifted genius of our age and tells of his wise ways in dealing with his African patients and his warning " against the temptation of disposing of those things which we do not understand by calling them ' inferior '." She also stresses " the wide differences which exist between the various African peoples."

Marginality, mobility and stratification.—By Bruce Mazlish—and *An experiment in racial attitude*—By Granville B. Johnson.—These articles both deal with racial aspects.

This number also includes some excellent book reviews and a review-article on *The behaviour complex of Communists.*—By Wilson Record.—The book on which it is founded (*Report on the American Communist*, by M. L. Ernst and D. Loth) is however " not statistically valid, but insightful."

The American language can be very engaging and *Phylon* is full of delightful phrases such as " rendition of motivation is quite inadequate." It is always a delight to be instructed and entertained at the same time.

URSULA GRANT DUFF.

FROM THE PRESS CUTTINGS

Migration

A conference of Australian State Ministers of Immigration with the Federal Minister of Immigration have approved the Commonwealth Government's plan to bring in 90,000 migrants during the year 1953-54. Three thousand additional British migrants will be brought into Australia during the same period under a revised scheme ; they would come in under the nomination scheme, in which it is necessary for an immigrant to have a sponsor living in Australia.

The conference decided to examine facilities for bringing in more child migrants.

Mr. John Moss, a member of the Curtis committee for the care of children, has visited Australia and investigated the homes where children emigrating from Great Britain have been received. Some 2,000 children have emigrated to Australia since the end of the war under a scheme primarily intended for the emigration of children who have been deprived of a normal home life, and Mr. Moss said he was impressed by the thoroughness with which the interests of child migrants were safeguarded and by the standards of care available. There had been opposition in some quarters to sending a child for whom a local authority was responsible 10,000 miles away, but he was sure that anyone who had seen the conditions under which the children were being cared for would have no hesitation in helping to fill the vacancies which now exist in approved establishments ; they would then not only be doing good to the children but helping to increase the English-born population of Australia.[1]

Population Problems in Germany

The creation of a special Federal Ministry for " Family and Youth Questions " and Dr. Adenauer's statement that the ageing of the West German population was a matter for serious concern have raised again the question of the German birth-rate. It seems certain that the Government intends to try to stimulate the birth-rate, if not by " bounties for children " at least by giving taxation relief to big families.

If present trends continue, the number of people of " wage-earning age " will remain roughly constant at 31 millions during the next twenty-five years, while the number of people over the age of sixty-five will rise from 4.4 millions to 7.4 millions during the same period.

Since the war the birth-rate in Western Germany has been fairly constant. In 1946 the surplus of births over deaths was just under five per thousand; it rose to about six in 1949, and had dropped to five again three years later. This, and the fact that there are 3 million more women than men in Germany, are the two main worries of the German " populationists."[2]

Vital Statistics in France

Statistics for births in France during the second quarter of the current year show that the birth rate is continuing to decline from the high level maintained from 1946 to 1951, but that it is still well above any year between the two world wars, except 1920. The total number of births in 1953 is expected to be about 800,000 as against an average of 850,000. The total surplus of births over deaths is expected to be between 240,000 and 250,000, the smallest since the war, but still giving a large margin of vitality as compared with 1938, when there was a small surplus of deaths over births.[3]

Artificial Insemination

According to Dr. Sophia Kleegman, clinical professor of obstetrics and gynæcology in the New York University College of Medicine, there are about 10,000 children, most of them not more than fifteen years old, who are the products of artificial insemination. She says there have been no "unhappy results" and couples come back for second and third babies by this method. Dr. Kleegman said that she had helped to bring about seventy-five successful pregnancies by what she called "therapeutic donor insemination," but not every couple who wanted a baby by this method was accepted.[4]

Sterilization

The Pope has reaffirmed the ban of the Roman Catholic Church on any kind of human sterilization. He told the international group of geneticists whom he received in audience at his summer villa that in the world of man, the science of eugenics must be governed by immutable moral laws; direct sterilization of man or woman was against the laws of nature.[5]

In New Delhi, the Council of States rejected a motion that "This Council is of the opinion that, with a view to securing the development of a healthy and strong nation and also to check the growth of the family where desired, the Government should take early steps to enforce sterilization of such adults as are suffering from incurable disease or insanity." Arguments from the point of view of population control and eugenics were marshalled in support of the motion, which was vehemently opposed by the Health Minister, who asked who was to judge the degree and type of insanity which necessitated the sterilization of the person concerned, and with the advance of medical science, which doctor would describe any disease as incurable.[6]

Problem Families

Dr. J. R. Graham, Medical Officer of Health to Chesterfield Rural Council, said in his annual report that the authorities had had trouble with problem families; very often, when they left their council homes, large sums had to be spent to put the vacated houses in order. He felt that special accommodation should be provided for problem families. Suggestions such as sterilization were fraught with much controversy, but some means would have to be found to deal with the problem at its source by preventing the unfit from having families.[7]

Dr. Nora Wattie, Glasgow medical officer for maternity and child welfare, said that it did not help to move problem families from their often sordid homes into new council houses. The theory that such families would be encouraged to do better by the example of decent families in neighbouring houses had been proved wrong. And if the problem families retained their bad habits the respectable householders around them were often tempted to lower their own standards or leave the district. Dr. Wattie said that problem families should be housed where a watch could be kept on them and where they could be taught gradually to accept better living conditions. When it was found that they were making an effort to produce a real home they would become eligible for a new house.

Dr. Wattie was speaking at the closing session of the Royal Sanitary Association of Scotland congress.[8]

A mother of two children, accused of stealing £2 3s., was told by a Clerkenwell magistrate that she was living in deplorable conditions and that her children were not having a chance in life. He advised her to get in touch with the Family Planning Association. Later the woman, aged 19, and her partially blind husband, aged 21, said that they did their best for the children and would not go to the F.P.A.[9]

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[1] *Scotsman*, October 6th, 1953. [2] October 22nd. [3] November 4th. [4] *Empire News*, September 13th. [5] *Auckland Star*, September 9th. [6] *Times of India*, August 29th. [7] *Manchester Guardian*, September 28th. [8] *Daily Express* (Scottish edition), October 3rd. [9] *Daily Express*, October 31st.

"Galtonia candicans," which is reproduced on the front page of the cover, is a flowering plant named in honour of Sir Francis Galton in 1880 by Professor J. Decaisne of the Paris Museum of Natural History

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