

simple plan of tabulating figures and percentages, or drawing rather unsatisfactory diagrams.

The truth is, we think, that this is pre-eminently a case for the use of the method of correlation. The problem is—given a number of measurable factors each of which affects the infantile mortality, which is the most important?

We will illustrate the line of treatment which should, we think, have been adopted. Let us suppose that we require to determine the relative importance of (1) poverty and (2) artificial feeding as factors in the death-rate of infants. Taking the data for rural districts, we find that the correlation between artificial feeding and infantile mortality is 0.77, and between pauperism and mortality 0.44. There is also a correlation of 0.37 between pauperism and artificial feeding.

We now require to know how much of the first two correlations is indirect and dependent upon the correlation between artificial feeding and pauperism. Using a well-known theorem,⁴ we find that the correlation between pauperism and infant mortality when the part due to artificial feeding is eliminated, becomes 0.26, while the correlation between artificial feeding and mortality when the factor of poverty is similarly kept constant becomes 0.73. In other words, infantile mortality is much more closely associated with artificial feeding than with pauperism.

These remarks are intended merely as an illustration of method. In a proper treatment of the subject a fourth variable, namely, the birth-rate, would have to be considered, and of course the rest of the data would require analysis. We may return to this subject on another occasion. At present it is sufficient to indicate what seems to be the proper method of handling a most important problem. We must not, however, part company from Drs. Groth and Hahn in a carping spirit. We heartily wish that their zeal and industry might find numerous imitators, especially in the ranks of that band of well-meaning persons who favour the profession with advice and criticism. It may be that some of our brethren, while studying the works of eminent statisticians, have been involuntarily reminded of a criticism addressed to certain sons of Levi; still, it must never be forgotten that in the collection and analysis of statistical data lies the only hope of arriving at truths of paramount importance.

DISTRIBUTION OF DISEASES IN PERSIA.

DR. M. M. BASIL, now of Taurini, Constantinople, who practised in Teheran from the end of 1889 to May, 1909, and who, he tells us, was from 1890 to 1906 the teacher of the hundred students who passed through a curriculum of six years at the Imperial Polytechnic College there, has sent us some notes on disease as he observed it in Persia from which we quote the following:

1. *General paralysis of the insane* is a disease entirely unseen in Persia. No case of it was seen by me in Teheran. My inquiries in Resht and Ispahan confirm my Teheran experience. I was assistant medical superintendent of the District Lunatic Asylum at Melrose for three years, and I have travelled all over Scotland specially to visit asylum work, and should not have overlooked a case. When I drew the attention of the late Sir Joseph Tholozan to this remarkable fact, he thought he had one case to show to prove the existence of the disease in Teheran. We visited the gentleman, and the presence of equality of pupils, absence of any tremors about the mouth—in fact, the total absence of all physical signs of the disease—compelled me to reject the diagnosis in spite of vague mental symptoms. The gentleman lives yet without any further development of the disease, and mentally he is not more ambitious than most Persians.

2. *Tabes dorsalis* is an extremely rare disease in Teheran. I have seen only one case in which the symptoms and the evolution of the disease to the end left no doubt as to the diagnosis. My experience of twenty years makes me look on any case of ataxia in a Persian with grave doubts.

Opinions would naturally differ as to the cause of the absence of the first disease and the rarity of the second in Teheran. My own impression is that the form of

alcohol consumed by the Persians is an important factor. Wine is made in Persia after the manner frequently referred to in the Scriptures. Bunches of grapes are crushed by men walking on them, then put into vats; after a few days of fermentation and stirring the whole mass is allowed to mature, filtered in a rough way, and the alcohol of the dregs left on the filter is distilled off. Or raisins mixed with water are put into vats and, after fermentation, subjected to distillation; 99 per cent. of the alcohol consumed in Persia is thus obtained directly from the fermentation of grape sugar without the possibility of any adulteration. Whisky, brandy, vodka, and other European forms of alcohol are rarely used, being consumed more as luxuries than ordinary beverages. *Tabes dorsalis* and general paralysis of the insane cannot be due to worry, overwork, anxiety, etc., because all these causes exist in Persia, and in the troublesome domestic and uncertain political life of Persia they are even more powerful than in Europe. These maladies cannot be due to syphilis, for, without going so far as to say that syphilis is as common in Teheran as in London, Edinburgh, and Manchester, I can say that syphilis is frequent in Teheran. All forms of the disease are seen daily. Ataxia is not a parasyphilitic disease as far as Persia is concerned. It would be interesting to search in old medical literature in Europe in the days when the popular beverage of the people—in England and France, for example—was wine and eau de vie, to see if then any disease resembling general paralysis of the insane and *tabes dorsalis* were recorded. Both are conditions with features so striking that it is almost inconceivable to suppose that they existed in Europe in the old days and were overlooked or mistaken for other diseases.

3. *Gastric ulcer* is unknown in Persia. Cirrhosis of the liver and tuberculosis of the alimentary tract are frequent and various forms of severe dyspepsia are seen especially among sedentary students. In all these conditions well-marked haematemesis may occur, but the condition met with in Europe mostly in anaemic, stout subjects, especially young women and associated with the round ulcer of the stomach, is unknown in Persia. I graduated in Edinburgh, 1882, and left England in September, 1889, being in hospital, asylum, or private practice for seven years before going to Persia. For three years I was non-resident house-surgeon to the Manchester Southern Hospital for Women and Children. In Manchester especially I saw cases of gastric ulcer for prolonged periods clinically, and on the operation table, or in the *post-mortem* room. My clinical experience in Teheran does not point to any similar disease among Persians, but pathological work on any extensive scale is out of the question. Persians are residents of elevated table-lands and like inhabitants of other mountainous countries are full-blooded. Milk is seldom taken by Persians. It is transformed into yoghurt or mast and used in this form as food. Vegetable food, and especially vegetable acids, lemon juice, the juice of unripe grapes, sour fruits, etc., enter largely into the dietary of Persians. Rice and bread form the staple articles of food; meat occupies a secondary place. The above conditions combined with many others, for example, abundant supply of air and light, contribute to make digestion easier in Persia than in Europe.

4. *Traumatic tetanus* is a rare disease in Teheran. During the first three years of my medical studies I followed the clinical work in the medical and surgical wards of the hospital of the Medical College of Bengal. Traumatic tetanus is seen frequently in India, and in Calcutta I saw many cases of it. I was surprised during the first five years of my experience in Teheran, and in spite of special inquiries, that I never saw or heard of an undoubted case of traumatic tetanus in Persia. The Arabic word for tetanus (*kozaze*) corresponds to our trismus (lockjaw), and the native physicians often diagnose tetanus when from any local irritation they observe trismus. I have never seen a case of idiopathic tetanus in Persia, where strychnine poisoning is very frequent. I have the detailed history from non-medical sources of two cases of very severe spasmodic disease, one ending in death, one in complete recovery, in the same family, at different periods; they occurred at Julfa, near Ispahan and from the accounts given to me I suppose them to have been cases of tetanus following parturition.

⁴ Yule, *Proc. Roy. Soc.*, vol. ix, p. 477 et seq.

5. *Tabes mesenterica* is a rare disease in Persia. I never saw a well-marked case in a Mohammedan child in Persia, yet tuberculous intestinal disease is a common malady among Persian adults. Pulmonary phthisis is seen in Teheran, and even in Resht, which is sometimes said to be free from tuberculous phthisis. In Teheran the old quarters, where houses of over a hundred years old exist, low down among valleys, phthisis is not rare, and is most often seen in the colony coming from Azerbaijan. Intestinal tuberculosis, primary, as far as my experience goes, is frequent in Teheran—quite out of proportion, judging from European experience, to the cases of pulmonary phthisis. I fancy the large quantity of dry, indigestible vegetable material, in the way of the seeds of pomegranates, roasted almonds, pistaches, seeds of melons, of water-melons, etc., continually ingested by the Persians, are causes of intestinal breaches of continuity on which tuberculous disease is easily inoculated. I fancy also that the Persian child is not subject to intestinal tuberculosis to the same extent as children in Europe, because hand-feeding is very rare. Koranic law—at any rate, the Persian interpretation of the law—requires every child to be fed on the breast for two years. The vast majority of Persian children are nursed by their mothers; in the upper grades of society nurses are employed frequently, but artificial feeding is never seen among Persians. Lactation is generally prolonged wellnigh to eighteen months or two years.

6. *Malignant disease* is less common in Persia than in Europe. Sarcoma is frequently seen, but true carcinoma is rare. I have never seen any case of true uterine cancer in a Persian. My cases have been in Armenian women; "cancer of the uterus," when diagnosed by Persian physicians in Mohammedan women, has invariably on careful physical examination proved to be something else. Fibroids of the uterus are seen frequently. Cancer of the breast is not rare among Persians, but the vast majority of cases of cancer seen in Teheran are in connexion with the abdominal cavity, mostly gastric in origin. Persians connect the origin of cancer and of tuberculosis with special houses, and, as in India, special cholera houses are pointed out by old Indian residents; similarly, "cancer and phthisis houses" are pointed out by old Persians. In Teheran there are really very few ancient houses. All over Persia the mosques, public baths, bazaars, and caravanseries form the principal old buildings. Private houses are generally made of perishable material. They are more or less of the nature of tents rather than of permanent family dwellings. In Teheran there is comparatively a heavy rainfall, and as the roofs of houses have generally perishable beams, few houses last over fifty or sixty years. Even in the old quarters of the city there are few dwellings dating as far back as a hundred years. It is specially in the old quarters of the city that I have seen cases of cancer and phthisis. In Ispahan, ancient brick houses are sometimes met with, and it is specially among old Ispahan families that the theory connecting the existence of cancer and phthisis with special dwellings is rooted.

7. *Appendicitis* is rare among Persians. In Teheran I have seen cases of this disease frequently enough, but among Europeans, Armenians, and such Mohammedans as have lived abroad, in Russia and Turkey, and have more or less adopted Western ways of living. In primitive Persians, feeding on the simple diet of the country, I do not remember seeing any case of appendicitis.

8. *Diabetes* is much more rare in Persia than in Europe, and the prognosis of a case is less grave. I have known cases doing well for years. I remember two cases with grave symptoms commencing in Persians during a journey in Europe; on returning to Teheran the diabetes disappeared after a very simple treatment by sodium salicylate. Persians feed on plain food in the fresh condition. They do not understand keeping butcher's meat to make it tender. Europeans, on the contrary, are specially prone to diabetes in Persia.

9. *Bright's disease* is frequently seen among Persians, but the prognosis is less serious than in Europe. I remember many cases I saw during my earlier years in which, from my experience in England, I pronounced death not far off. Yet most of them were living years after. Patients suffering from kidney disease who are consumers of opium die rapidly in the severe dry frost of

Persia. Persian climatic conditions are peculiar; high elevation, great dryness promoting free evaporation from the skin, and mostly small range between the day and night temperature. In particular stations where the climate is damp, or severe cold nights follow hot days, patients with Bright's disease do badly.

10. *Vesical or urinary calculus* is not a very frequent disease in Teheran. Persians who have passed many years in and near Mesopotamia—as Kerbella, Nedjef, Bagdad, etc.—often come back to Teheran suffering from abundant bleeding from the bladder. I suppose this must be the result of some parasitic disease, but I have not been able to prove it.

11. *Rickets* to any marked extent is rare. Bandy legs, to the extent of demanding operative interference, are scarce, but rickets sometimes cause marked malformation of the whole body, often to a very slight degree. The sparsity of population in Persia gives plenty of space and air to each individual; add to this a dry climate and abundant light, and we have all the conditions that are necessary for the prevention of rickets. But the Eastern habit of swathing or bandaging a child is not without effect in keeping the bones straight. A Persian child is sprinkled with salt immediately after birth; it is then swathed, and is washed for the first time about the third day. This "salting" hardens the skin and renders it less irritable in that dry, sunny climate. The child is kept strictly bandaged, the lower and upper limbs and even the head religiously submitted to pressure and correction, for several months. This prolonged orthopaedic treatment gives straight bones, a peculiarly long head, and a remarkably deep thoracic cavity. The heart of the Persian is generally lower in the thoracic cavity than that of the European; the liver is often felt below the right costal edge without being diseased, and the stomach is always dilated without any abnormal state.

12. *Progressive pernicious anaemia* I have never seen in Persia; I have seen only 1 case of leucocythemia, 2 or 3 of Hodgkin's disease, 2 of Graves's disease, and 1 of Addison's, known to the native physicians as black jaundice, and supposed to be connected with some form of liver disease.

13. *Typhoid fever* is frequent in Teheran among Europeans, specially the English, less frequent among Armenians, and least of all among Mohammedans. The late Sir J. Tholozan doubted whether it existed among Persians; Dr. Polack wrote that it did not exist. I have watched undoubted cases of it among Persians, men, women, and young children, but I feel sure Persians are less liable to it than other races. A whole camp follows the Shah on his journeys, and it is generally the European employee who takes typhoid. Persians believe that beef-eating renders people liable to take typhoid fever, and except in the cold of winter Persians do not eat beef. Typhus fever is rarely seen in Teheran, but sporadic cases sometimes come under observation. On two occasions I have seen many cases in the summer. A group of Kurdish cossacks brought seven cases to the hospital attached to the regiment. I have known other cases imported from the old town of Demavend or Larigan.

14. *Mumps, whooping-cough, and scarlet fever* sometimes disappear from Persia for years, and when an epidemic occurs many Persian physicians do not recognize them. In the last epidemic of mumps in Teheran many men of over 50 or 60 took the disease. In the south of Persia scarlet fever is said to disappear for fifty or sixty years. Scarletina is very mild in Persia in the spring and in autumn, but extremely dangerous if the outbreak occurs in the thirty or forty hot, dry days of midsummer. I have not seen it in the depth of winter. Measles is frequently seen in Persia, and, except during the severe frost of the winter or the height of summer, it is a very mild affection.

THE Balneological and Climatological Section of the Royal Society of Medicine is to hold a provincial meeting at Buxton on Saturday, May 28th. A full programme of the proceedings can be obtained on application to Dr. Septimus Sunderland. They include visits to the Devonshire Hospital and the baths, and cover the week-end. A carriage for members will be reserved in the train leaving St. Pancras at 10.5 a.m.