vicinity of these furnaces being relatively sterile, the microbes being doubtless unable to exist at such a high temperature. Influenza appears to have but little regard for either sex or age, for it attacked indiscriminately men, women, and children between the ages of fifteen and sixty. Its taste was proved to be equally catholic as regards climate and situation, neither meteorological nor geographical conditions appearing to exercise any sort of control on its genesis and distribution.

The effect of the scourge on the death rate from other diseases has also been carefully investigated, and, as far as the statistics go, it would appear to have materially increased the deaths ascribed to pulmonary consumption.

Innumerable tables are appended to the report, but, perhaps from a popular point of view, the following statement, compiled from official data, showing the time occupied by the epidemic in travelling from east to west, is of most general interest.

Influenza was present as an epidemic in June 1889 in Turkestan, it only reached East Russia (Wjatka) after a lapse of four months, in the middle of October. On October 28 it appeared in West Siberia, and after an interval of three months, travelling eastwards, it reached Japan in January 1890, and Hong Kong in February. On its westward course it moved more rapidly, for it appeared in epidemic form at the commencement of November 1889 in Moscow, and about a fortnight later in St. Petersburg. The capitals of Sweden, Denmark, Germany, Austria, France, and England were all attacked towards the end of November and beginning of December, whilst in Budapest, Brussels, and Madrid it appeared in the middle of December. In New York it was first heard of on December 19, whilst by the end of the month Milan, Rome, Naples, Constantinople, numerous districts in the United States, Canada, and Morocco were all in the hands of the scourge. The commencement and middle of January found it in Turin, Algiers, and Egypt, and by the end of the month it had made its appearance in Central America and in South Africa; owing to the small amount of communication existing between Europe and East Africa, it did not appear in these parts until the end of March. At the end of February it arrived in Bombay. Thus whilst in the absence of definite channels of communication it only made slow progress, requiring upwards of four months to emerge from the heart of Turkestan to European Russia, on once reaching Moscow and St. Petersburg it spread with lightning rapidity over western and southern Europe, crossing the oceans to all parts of the world.

The report manipulates in a masterly manner an immense mass of facts; but valuable as the statistics here collected must be for purposes of reference from an historical point of view, the conclusions indicate only too plainly how far we yet are from an accurate knowledge of the factors which control the genesis and distribution of this terrible disease, convenient hypotheses being continually upset by the conflicting evidence collected as to its course and conduct.

SCIENTIFIC SERIALS.

Bulletin of the New York Mathematical Society, vol. iii. No. 6. (New York: Macmillan. March, 1894). — Prof. Harkness (pp. 135–141) gives a careful and appreciative abstract of the Cours d'Analyse de l'École Polytechnique, by Camille Jordan, a work commended by Prof. Klein in "The Evanston Colloquium," and which, in its second edition, is "entièrement refondue." Three interesting, though short, notes on Permutations (pp. 142–148) are furnished by Prof. F. Morley. They are headed a plea for the chess-board in teaching determinants, a special rule of signs, and the enumeration of positions. There are numerous references to the authorities on the subject. Notes and new publications are full as usual.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, January 18.—"An Estimate of the Degree of Legitimate Natality, as shown in the Table of Natality compiled by the Author from Observations made at Budapest." By Joseph Körösi, Member of the Hungarian Academy of Sciences, Director of Municipal Statistics.

The author has tabulated the age of the 71,800 married couples given in the Census of 1891, conforming to the single year-combinations. The virtual number of these combinations—as 45 productive years of the male have to be combined with each of the 40 productive years of the female—is about 2000. Knowing thus the number of all age-combinations, he observed for four years (two before and two after the Census) the 46,931 births amongst couples of those ages. By dividing the figures obtained by four, he got the yearly probability of birth for each age-combination.

As the legitimate natality is to be regarded as a resultant between two distinct forces, the instinct of nature which urges towards multiplication and the forethought which causes moral restraint, it was also desirable to get an insight into the march of the physiological fertility alone.

Two degrees of fertility for each age were therefore obtained. The difference between the degree of physiological and that of the actual fertility shows, a few cases of procreative exhaustion being excepted, the influence of the moral factor. In the somewhat advanced ages this moral restraint exercises an influence exceeding all expectation. With the mothers of 30 to 35 it reduces the fertility to 78 per cent. (instead of 100 per cent.), with those of 43 to 2 per cent., *i.e.* 98/100 of the physiological faculty is suppressed. With men the influence is also very great, though weaker than with women.

Out of a large number of data here follow some figures to characterise the results:

	For the mother.		For the father.	
The fertility is	Actual. per cent.	Physiological. per cent.	Actual. per cent.	Physiological. per cent.
at 25 to 29 years	29·2	30·9	35·8	28·0 (?)
,, 30 ,, 34 ,,	20·6	32·9	27·1	27·0
,, 40 ,, 44 ,,	5·9	20·4	13·8	21·1

"Results derived from the Natality Table of Körösi by employing the Method of Contours or Isogens." By Francis Galton, F.R.S.

There are three variables in the statistics of natality. The age of the father is one, that of the mother is another, and the percental offspring of parents of those ages is the third. These three variables may be co-ordinated in the same way as that which is daily followed at meteorological offices in dealing with (1) the longitudes of the various stations; (2) their latitudes; and (3) the barometric height at each. After these data have been entered on a chart in their proper places, contours, known by the name of isobars, are drawn to show the lines of equal barometric pressure. In natality tables, the ages of the father and the mother take the place of the longitudes and latitudes in weather charts, and lines of similar birth rates, or as I would call them, "isogens," take the place of isobars. A chart constructed on this principle is shown in Fig. 1. The broken line A B corresponds to the instances in which both parents are of the same age. The chart is practically limited to marriages in which the wife is less than five years older, and less than seventeen years younger, than her husband.

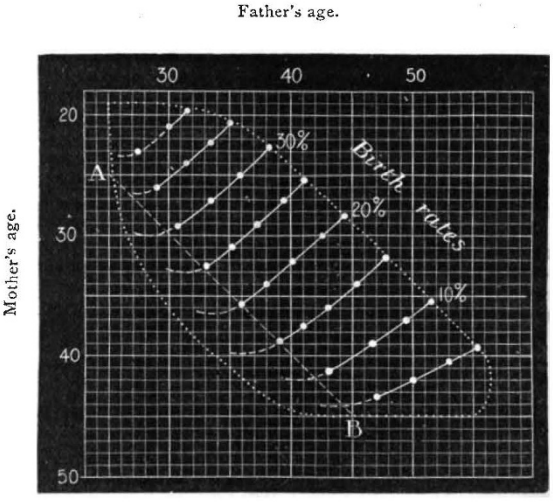

Fig. 1.

It will be noticed that the isogens run in nearly straight, diagonal, and equidistant lines across the greater part of