55.8, and for the second, 66.1, an increase of nearly 11. In considering these statistics, it would seem that the transmission of typhoid-fever by means of sewers is overlooked. In Brooklyn the outbreak of 1885 was distinctly traced to communication through sewers, and it was also fairly well demonstrated that the water-supply played no part at all in the transmission of the disease. The fact is undoubtedly that typhoid-fever is communicated both by means of sewers and the water-supply, and that neither is to be regarded as the sole factor in its propagation.

PASTEUR'S WORK. — Pasteur is at the present time being very severely criticised by his opponents, some charging him with causing the death of his patients by his inoculation experiments. The following table of statistics, taken from the *Lancet*, would seem to indicate, that, notwithstanding the adverse criticisms, Pasteur's claims to having saved life are established on a substantial basis.

	No. of cases treated.	Deaths from all causes.	Mortality.
Paris	2,730	45	Under 2 per cent
Odessa	325	12	„ 4 „
St. Petersburg	118	1	„ 1 „
Moscow	112	2	„ 2 „
Vienna	96	0	–
Warsaw	84	0	–
Naples	48	0	–
Samara	47	2	Under 5 per cent
	3,560	62	Under 2 per cent

These statistics include those treated up to the close of 1886. Since then, twelve or fifteen more deaths have occurred, making the total mortality less than 80, or 2¼ per cent. In contrast with this, we find the rate of mortality after bites of rabid animals to be about 16 per cent; or, in other words, the treatment pursued by Pasteur and those who have practised his method elsewhere, has been followed by but one death, while without the treatment there would have been seven deaths, per thousand.

GEOGRAPHICAL DISTRIBUTION OF CONSUMPTION. — The New Sydenham society has recently published the third volume of Hirsch's 'Handbook of geographical and historical pathology,' in which the author treats of pulmonary phthisis. He finds the disease to be one of all times, countries, and races. Its mortality is 3 per 1,000, or nearly one-seventh of the total mortality. In Vienna the rate is 7.7 per 1,000; in Berlin and Dresden, but 3.8. Among nomad tribes, the Kirghiz of Central Asia and the Bedouins of Arabia, phthisis is almost unknown. When, however, these tribes change their abodes and dwell in towns, then the disease appears among them. The conclusions of Professor Hirsch are as follows: 1°. Phthisis is everywhere prevalent, but it is rare in polar regions, and rarer still at high altitudes; 2°. The main factors in its production are over-crowding and bad hygiene; 3°. Heat and cold, *per se*, have no influence: 4°. Damp, when conjoined with frequent oscillations of temperature, predisposes to the disease, but humidity of the air is less important than dampness of soil; 5°. Occupation is extremely important, but mainly indirectly, as tending to good or bad hygienic conditions.

WHOOPING-COUGH. — At the sixth German congress for internal medicine, held at Wiesbaden in April, the subject of whooping-cough was discussed. Professor Vogel of Munich regards the disease as infectious. In an epidemic which occurred at Wurzburg, 52 children under one year of age were affected, and 13, or 25 per cent. died; 248 between one and five years were also affected. Of this latter number, 12, or 4 8 per cent, died; while between the ages of six and fifteen years there were 87 cases, of which but one case, or 1.1 per cent, was fatal. Professor Hagenbach of Basle said that 240,000 children in Germany have this disease annually; the mortality being, on the average, four or five per cent. He regards it as communicable so long as much mucus is produced. Schools should be most carefully watched, and children who have paroxysmal coughs should be excluded; and, if the disease occurs and spreads, the schools should be closed. The moving of children from place to place for change of air is often the cause of an epidemic in places free from the disease.

MENTAL SCIENCE.

Para-psychology.

WHEN, through disease of the nerves or the action of drugs, the sense-organs lose their sensibility, the state thus produced is called 'anaesthesia;' when, for similar reasons, their activity is unduly heightened, the condition is spoken of as 'hyperaesthesia;' and when the abnormality of sensation consists in the production of unusual effects by ordinary stimuli (for example, when every touch is regarded as the creeping of an ant

over the skin, or when the two points of a compass seem as three), the condition is termed 'paraesthesia.' By analogy the term 'para-psychology' may be invented to apply to those weirdly imaginative systems of thought by which some intellects strive to satisfy their inner longings, and to make the world seem rational. For these persons the advance of science has no meaning; to them it is simply painfully slow and accurate walking; while their ideal of locomotion is flying in a frictionless ether.

An exquisite example of this type of mind (which, by the way, often contains a kernel of sound truth) is exhibited in a recent attempt to portray the evolution of human consciousness in a series of highly symbolic and complex geometrical diagrams. The author of the work began his career as an architect, but, dissatisfied with his profession, went to India to pursue 'the study of internal truth,' and spent twenty years in completing this elaborate system of symbolism. A frank admission, that, like many of the persons to whom these diagrams were shown, the present writer does not understand them, will readily excuse him from giving an exposition of their meaning. All that can be done is to piece together a few sentences from this geometrical symbolism. There are five standing-grounds of human evolution, — from the first, representing sense-perception; to the second, which is merely negative and unrepresentable; to the third, the sphere of self-sacrificing duty and spiritual enlightenment; to the fourth, again an unthinkable negative stage; culminating in the fifth, a stage, though positive, yet so ideally spiritual as to entirely surpass our finite conceptions, and only glimpsed perhaps now and then by a supersensitive clairvoyant. The first stage is represented by a plane; the third finds its representation in three dimensions; while the fifth would require a fourth dimension to do it justice; the intermediate negative stages being entirely unrepresentable. On the first plane the forms take the shape of leaves; a pointed apex indicating a male form, or Ond, while a rounded apex indicates the female form, or Onde. The limit of the one is a straight line, the symbol of severe intellect; of the other, a circle, symbolizing all-embracing emotion. In the third stage the leaves become flowers, with trumpet-shaped corollas for the males, and bell-shaped for the females; with colors suggested by spinning the plane forms (cut out of cardboard) in a dark room illuminated by a beam of light, and a host of symbolic details mirroring nothing less than the entire history — past, present, and future — of the human race. Add to this a painstaking forcing of all these botanical forms by a fanciful application of arithmetical, geometrical, and harmonic progressions; intersperse this with a sprinkling of theosophic cant and vague word-philosophemes, — and some notion of this para-psychological system will perhaps result. If not, it is only necessary to add, that the author has frequently drawn horoscopes, has discovered that our solar system is a male universe and is represented by the use of this geometry by a nine-petaled lily, while the earth (*mirabile dictu*) finds its symbol in a form like ♁, which was actually used by astronomers for this purpose.

That all this is full of life and meaning to its author, and will be suggestive to many readers, there is no reason to doubt; any more than there is to doubt that he was unconscious of forcing his diagrams into the shape of leaves and flowers instead of their teaching him that each heavenly body was mirrored in a plant below.

Apart from the sad spectacle of misused talent (and that can be seen in any insane-asylum), the survey of such a system emphasizes by contrast the moral value of logical method, and illustrates the great dangers of mono-ideism, and of that unchecked imagination which has prepared so many victims to the snares of a mad symbolism.

THE COMPARATIVE INTENSITY OF SENSATIONS. — M. Bloch has compared the relative strength of sensations by finding which of two exactly simultaneous sensations is perceived first. He first had a bell struck and a white paper appear nearly at the same time, and found, that, if the sound comes $\frac{1}{86}$ of a second before the white streak, one heard before one saw. If the two are still closer together, they seem to be simultaneous, and remain so until the streak is $\frac{1}{28}$ of a second before the sound, when the sight precedes hearing; so that within these limits ($\frac{1}{86}$ of a second before, and $\frac{1}{28}$ of a second after) there is practical simultaneity. From this is calculated that it takes $\frac{1}{72}$ of a second longer to hear a sound than to see a sight. From a similar series of experiments it was found that it took $\frac{1}{21}$ of a second longer to feel a touch than to see a sight; so that the order of intensity — meaning by this the power a sensation has to attract attention and get first into consciousness — is sight, hearing, touch.

THE BLIND IN CHINA. — Mr. W. H. Murray, an Englishman, has been the means of introducing into China a system of writing the Chinese characters in raised print. When we consider the complexity and multitude (about four thousand) of Chinese characters, and remember that the smallest of China's eighteen provinces is equal in ex-

tent to England (and England has forty thousand blind), the vastness of this philanthropic work will be apparent. Mr. Murray noted the actual sounds used in speaking Chinese, and succeeded in reducing these to four hundred, each being represented by a different arrangement of dots. He tried his first experiment on a blind beggar taken from the streets, and in six weeks taught the boy to read, and even to write a little. The fame of this experiment soon spread, and pupils crowded to be taught. The system was extended to include music and to adapt itself to the various dialects, — no mean task, since the Bible must be printed in eight different sets of characters to be understood all through China.

EXPLORATION AND TRAVEL.

Danish explorations in East Greenland.

It is stated in Copenhagen, says *Nature* of May 5, that an expedition will be despatched late this summer by Herr A. Gamil, the equipper of the Dijmphna expedition of 1882, to the north-east coast of Greenland. It is hoped that the explorers may reach a higher latitude than that attained by Lieutenant Holm in 1884. The expedition will be commanded by Lieutenant Hovgaard, who in 1882 commanded the Dijmphna.

It will be remembered that Holm made a successful exploration of the east coast as far as latitude 66° 20′ north in 1884 and 1885. He started from the west coast in several Eskimo boats, and, by the help of the natives, reached the fiord of Angmagsalik. His observations on the ice phenomena of this coast show that the sea is probably navigable during a great part of the year. There is little or no ice close to the coast in the autumn and during the early part of winter. In January and February heavy masses of ice lie close to the shore, and remain there until late in spring. In June or July they begin to disappear. From these observations, it appears that the coast can be reached by vessels late in the season, and the new expedition will probably make use of this experience. It is a remarkable fact that in arctic America those places are most easily approached where the coast makes a slight outward turn, while concave bends of the coast are always difficult to approach. The east coast of Greenland was reached by Scoresby near Scoresby Sound, and by Nordenskjöld at Cape Dan. At both points the coast makes a turn. South of Cape Dan we find a slight concave bend, which is always filled with closely packed ice. The same fact may be observed in Baffin Bay and Davis Strait. The bay of Julianehaab is always full of ice, and the land cannot be reached here, while farther north there is only loose ice under the coast. The west ice of Baffin Bay can be crossed most easily near Cape Walsingham and Cape Kater, — the middle water of the whalers. This phenomenon is easily accounted for: on the straight or concave coast the ice is pressed against the land, while on the points there is room for it to spread out. There are many questions of great interest to be solved on this coast, — the extent of the inland ice, an; exploration of the enormous sounds of Scoresby Land and King William Land, and the northern limit of man. On his visit to East Greenland, Scoresby met Eskimos in latitude 70° north. The German expedition of 1869–70 found the ruins of their houses at the farthest point reached. Many facts make it probable that the Eskimos travelled around the north point of Greenland; and therefore a study of the most northern tribes of the east coast is of particular interest from an ethnological point of view, and for the decision on the feasibility of the exploration of the north coast of Greenland.

Polar regions.

According to the Proceedings of the Royal geographical society for May, Sir Allen Young, the well-known arctic explorer, has offered his services to the Australian colonies to lead an expedition to the antarctic regions. Acting on this offer, Sir Graham Berry has brought the question of a government grant towards the cost of the enterprise (stated to be $40,000) before the cabinet, and the matter is being urged forward with a view to the vessel or vessels starting from Hobson's Bay in October or November next. The object of the expedition is to be entirely geographical, but incidentally much advantage is expected to accrue to the whaling and sealing interests, which would profit by the information gained. While thus an important further step has been taken to promote the Australian expedition, it seems that the reports on Nordenskjöld's plans were not well founded. It may be that he plans an expedition towards the south pole, but so far no funds are available for this purpose.

The season of arctic travels is also approaching. Mr. K. D. Nosilof, a Russian explorer, announces to the French geographical society (*Compt. rend.*, No. 7, 1887) his intention to visit Nova Zembla. Nosilof has spent three years in exploring the northern Ural to find a practicable route to Siberia. This was done at the expense of Mr. Sibiriakof, who has given up his intention of establishing regular communication by sea between the Obi and Archangel. On his new expedition, Nosilof intends to make a detailed survey of the coasts and of the interior, and to study the