

The length of the several roads, the width of the great plains and mountains, are controlled by the configuration of the continent. The Rocky Mountains run in a south-easterly direction, while the trend of the coast is southerly, even a little south-westerly, to San Francisco, and then south-easterly to the Isthmus of Panama. This causes a diminution in the width of the great plains on the line of the Union and Central Pacific roads, and a corresponding increase in the width of the mountain systems and in the length of the road. On the Canadian Pacific the great plains are 1,000 miles wide, and the mountains about 500 miles wide. On the Union Pacific the plains are 500 miles in width, the mountains 1,300 miles.

The distances on the several roads from a common degree of longitude, say the 97th, to the Pacific Ocean, is shown in the following table:—

Canadian Pacific to Vancouver.....	1,480	miles.
Northern Pacific to Portland.....	1,620	"
Union Pacific and Oregon Short Line to Portland.....	1,724	"
Union and Central Pacific to San Francisco.....	1,885	"
Atchison, Topeka & Santa Fé to San Diego.....	1,694	"
Southern Pacific to San Francisco.....	2,024	"
Southern Pacific to San Diego.....	1,610	"

All these roads require a harbor at the terminus on the Pacific coast. North of the lower end of Puget Sound the coast is studded with islands and excellent harbors. From Puget Sound south the mountains rise almost directly from the ocean, there are few islands, and the only harbors are at the mouths of the rivers, and these are generally barred.

The Canadian Pacific finds a harbor at Vancouver on Puget Sound; the Northern Pacific was forced to cross the Cascade Mountains to reach a good harbor at Seattle and Tacoma on the sound; the Oregon Short Line has its terminus at Portland, 100 miles from the mouth of the Columbia River, where there is a bar which cannot be crossed in stormy weather; the Central and Southern Pacific have good harbors at San Francisco and San Diego; the Atchison, Topeka & Santa Fé at San Diego.

GARDINER G. HUBBARD.

#### PSYCHOLOGICAL MEDICINE AT THE INTERNATIONAL MEDICAL CONGRESS.

THE programme of the Section of Psychological Medicine and Diseases of the Nervous System, at the recent congress, was a highly promising one. It announced the reading of a variety of interesting papers, and a very large representation of foreign specialists amongst the readers. But the programme was widely diverged from, and, of the forty papers announced, less than half (and not, perhaps, in every respect the best half) were presented. Hardly one-quarter of the foreign delegates who were announced to present memoirs were present to do so. While thus the expectations aroused by the inviting programme were naturally destined to disappointment, the proceedings of the section are by no means to be considered unsuccessful. Like the other sections, it suffered considerably by the absence of the leading specialists of the United States. Had the acknowledged leaders of American neurology been announced to be present and to actively participate in the proceedings, not only would all the distinguished foreigners who announced their coming have had greater inducements to come, but the meeting would have recorded the high-water mark of neurological science. Judging the proceedings by the same standard that is to be applied to the entire congress, much can be said in its favor, and some interesting observations and suggestions can be culled from its deliberations. The address of the president of the section, Dr. J. B. Andrews, gave a very useful summary of the distribution and care of the insane in this country. Throughout the country there is one insane person to 545 individuals; but this ratio does not hold for all the various elements. The leaders of our civilization, and, above all, the foreign element, who have the difficult problem of adapting themselves to a violent change in their life-habits amid the pressure of a sharp competition, are the victims of mental break-down. One in every 250 of the foreign population is insane, one in 618 of the native whites, and only one in 1,097 of the colored population. But even in the last mentioned their emancipation and free admittance to civilization have more than doubled their former percentage of insanity. This fact—that insanity is a

disease of civilization—is also shown by the fact that the prevalence declines as we move towards the west and away from the cities. Insanity, moreover, is on the increase, and in this country at the startling rate of nine per cent per annum. Dr. Andrews also described the great improvement in the rational care of the insane (and this, in part, accounts for the increased longevity, and thus the increased number, of this class), and added, that, if this country had little new to show, it at least manifested its ability to keep abreast with the progress of other countries.

Dr. D. Hack Tuke of London sent a paper in which he compared the insane of this country with those of England. The difference in the nature of the asylums of the two countries makes an accurate comparison impossible, but such comparison yields much more similarity than difference. Dr. Tuke favored the 'segregation' plan, in which one patient, or at most a few, are under care in the same homestead, and welcomed the now general agreement that mechanical restraint was to be used only in exceptional cases, but that in such cases it is to be unhesitatingly employed.

Dr. H. M. Hurd of Michigan presented a valuable sketch of the development of religious insanity, tracing the relation between the nature of the morbid delusion and its physical excitant, and again with the age, sex, mental development, etc., of the individual. The healthiness of the religious sentiment lies in a just development of the emotional with the intellectual faculties.

Dr. Langdon Down of London described several interesting cases in which mental deficiency was associated with a prow-shaped cranium. The cause of this, Dr. Down referred to an abnormal juncture of the medio-frontal suture. The break-down in such cases may occur at any important change,—at first or second dentition, at puberty, or even later,—and the deficiency may vary from mere stammering and sluggishness of thought to marked idiocy. The education of children with this cranial mark should be a most special and careful one.

Dr. Horace Wardner of Illinois showed most conclusively the admirable effect of occupation in insanity. In a well-managed asylum eighty per cent of the inmates can be usefully employed, and this employment made an essential factor in their cure: it diverts their mind from brooding over themselves and their imaginary ills, prevents *ennui*, and establishes a healthy rhythm. Dr. Wardner cited several cases in which the occupation learned in the asylum became a means of livelihood after dismissal from the asylum. Such patients, while not cured, were yet able to begin life anew on a lower and simpler plane: they had not regained full mental power, but occupation had rescued them from chronic insanity to a condition of social usefulness.

Dr. G. Fielding Blandford of London presented before the entire congress a paper on the treatment of recent cases of insanity in asylums and in private houses, originally intended for this section. He showed how frequently a violent outbreak of mania passes away quite suddenly, and leaves the patient in full health. In all such cases the stigma, rightly or wrongly, attached to having been in an asylum can and should be avoided. The physician should have the right to keep patients of this general class outside of an asylum long enough to judge whether such a course is necessary or advisable. Dr. Blandford then gave criteria for distinguishing between cases which could be best cured in a private house and those who needed the 'judicious neglect' of a public asylum. Reform in the treatment of the insane will certainly take place in the direction indicated by Dr. Blandford.

Dr. T. W. Fisher of Boston spoke on the modern equivalents of 'monomania.' He found these in the current terms 'paranoia' (which corresponds closely to 'crankiness'), the German 'primäre verrücktheit,' and the like: he argued for the separate recognition of this form of mental alienation, and gave certain marks by which to distinguish it.

Professor Mendel of Berlin, in a paper on moral insanity, advocated a disuse of the term on the ground that it was either a form of congenital imbecility or an accompaniment of paranoia resulting from a systematic delusion, and that it was a dangerous plea to bring before the courts.

Several anatomical papers were presented. Amongst these, one by Professor Mendel, on the origin of the ocular branch of the

facial nerve, was especially important. Dr. Mendel experimented by destroying the muscles supplied by these nerve-branches (mainly the muscle raising the upper eyelid) in young animals, and then observed the atrophy of nerve fibre and cell in the central nervous system. He found that the origin of this nerve-branch was not, as is currently supposed, in the general nucleus of the facial nerve, but in the posterior part of the nucleus of the oculo-motor nerve. This is another evidence to the fact that the nerve-centres are arranged for co-ordination of function (not for topographical convenience), those nerves arising from a common centre as must frequently act together in exciting a useful movement.

Dr. Spitzka of New York showed the cerebellum of a child of five years, who had never learned to speak or walk. The cerebellum was enormously asymmetric, and the entire brain and much of the body presented striking abnormalities.

Dr. Homen of Finland described a distinction between the motor and sensory areas of the spinal nerves as brought about by atrophy resulting from amputations. Dr. Otto of Munich advocated the use of magenta as a staining for sections of the nervous system.

Quite a number of papers of much too general a character were presented. Such papers, however valuable in themselves, are too much the record of individual opinions to be profitably presented at an international meeting. Such questions as the 'definition of insanity,' 'the classification of insanity,' and the like, are sure to be profitless; at least, until we know much more of the pathological nature of mental aberration than we do now. A very opposite criticism is to be passed upon the discussion on the relation of syphilis to insanity, which aroused much interest, and was practically and profitably conducted. The leader in the discussion was Dr. G. H. Savage of Bethlem, England.

#### MENTAL SCIENCE.

##### The Chronological Progress of Infants.

THE scientific observation of the early stages of development of the human infant, though no longer a novelty, can be said to have yielded only the first suggestions of the valuable generalizations which this study is destined in part to discover and in part to corroborate. Amongst these generalizations the most important is that psychological law which finds its analogue in the embryological law that the early life-stages of a species high in the animal scale repeat in part the mature stages of an animal lower in the scale, and announces that the mental development of the child repeats in part the development of the race. The many and suggestive analogies between the emotional traits and thought-habits of children and of savages have been frequently recorded, and their importance is more and more widely appreciated. Nor has the practical aspect of infant psychology been neglected. Once educators have recognized that this study promises a surer basis for early school-room work than any amount of simplification of exercises originally arranged for more mature minds, it makes the teacher learn from as well as teach the pupil. One educational body has asked for systematic records of child-growth, bodily and mental, and a few normal schools are substituting for the dry and often narrow course in 'Methods of Teaching,' a practical and original essay recording observations of various traits of child-life. One main purpose in all such records has been to get an average of the date and order of appearance of the several acts, instincts, emotions, ideas, and so on, in the child. In the process of obtaining such an average, much information will at the same time be gained as to the range of variation in time of appearance of the several traits, of the influence of sex, of heredity, of nationality, and of environment upon them. When such a record will be at our command, the rate of progress of any particular child, whether precocious or backward, will be easily ascertainable, and much energy be saved in propping up what needs support, in checking over-development of certain traits, and thus promoting that harmonious all-sided growth which modern education regards as its ideal. The caution in the process should be in the direction of remembering the individual variation as well as the average, — that by nature men are far from being alike, and civilization requires them to be so only in a very restricted though important field of activity.

Dr. Stanford E. Chaillé of the Tulane University has recently

put together, in a form very convenient for others to supplement and perfect, the various stages of infant progress. He gives in a series of brief paragraphs the chief acquisitions which the average infant may be expected to exhibit for each month of the first year of life, and at intervals of several months from then to the third year. The acts whose appearance he notices include the physical signs as well as the actions on which mental growth is founded. As the article of Dr. Chaillé is itself a *résumé*, it will hardly be profitable to further epitomize the facts there given. Referring to the original paper for the facts (*New Orleans Medical and Surgical Journal*, June, 1887), it will be sufficient to state that they record the various reflexes (sucking, crying, sneezing, etc.) existing from birth, the order of the development of the senses (taste first) and the gradual change in their relative educational importance, the accommodation to the environment, the interpretation of the objective world (as the inference of distance by sight), the emotional evolution (fear being the first emotion), the expressions of pleasure and pain, the co-ordination of the muscle-movement into acts, the gradual voluntary control of hands and feet, the first sounds and attempts at language, the appreciation of colors, sounds, odors, and so on. The general conviction which this study has left upon Dr. Chaillé's mind is not in harmony with the popular belief that children are to a larger extent than adults virtuous and guileless, but agrees with the evolutionary notion that the virtues which civilization has taught us to admire are of recent growth, and not innate in the infant, whom it is more truthful to regard as a 'darling little savage,' than as a 'dear little angel.'

A point on which this paper is especially complete is the increase of weight, height, and chest-girth with each month of the first year of life, and at longer intervals from then to maturity. During the first three days of life there is a loss of weight, which should be regained by the seventh day. The greatest gain of weight occurs during the first five months, the maximum amount of growth falling probably in the second month, when the increase is from four to seven ounces weekly. From then on, the regular increase of growth which the table records takes place, leaving more room for individual variation with increase of age.

THE EFFECT OF OPIUM ON THE HIGHER ANIMALS. — It has recently been observed that opium affects apes just as it does men, producing all of the physical symptoms, and strongly suggesting the presence of some, at least, of the typical psychical accompaniments. A certain ape would always follow any opium-smoker, would look for the remnants which the smoker left unused, would cry when not admitted to the room where smoking was going on, and so on. The habit takes the same possession of them that it does of men. Apes who are in the habit of getting a little opium are inactive, dull, and useless if they miss their usual dose; and a Chinese merchant is recorded as having a large ape who howls piteously when his usual ration of the drug is denied him. Similar effects have been observed in dogs, and strikingly illustrate the functional similarity of the central nervous system of the higher mammalia.

A CHALLENGE TO THE EVIDENCE FOR THOUGHT PHANTASMS. — An article published in the *Nineteenth Century* for August, by A. Taylor Innes, and entitled 'Where are the Letters?' is in substance an attack on the nature of the evidence for death-bed and other coincidences, which Messrs. Myers, Gurney, and Podmore have collected in their 'Phantasms of the Living.' Most of these stories are those in which a friend or relative of the person concerned is suddenly presented with a vivid impression that the person in question, who is far distant, is threatened with danger; the case is then made out that the time of death of the individual coincided with the moment of the apparition to his friend. In a large number of cases documentary evidence of the simultaneity of the two occurrences — as when two letters, each recording one of the events, cross each other — is naturally obtainable; and the writer of the above article claims that in such cases the authors have been satisfied with the mere statement that such evidence existed without actually seeing the letters, and yet regarding such evidence as of first-class value. An actual examination shows how worthless such statements often are. In nine cases in which they did see the original manuscript the evidence is declared unsatis-