described an important prehistoric settlement in Kerry. These, as well as several other papers, were fully illustrated by lantern slides.

The centenary of the birth of A. Retzius, the pioneer of some of the modern methods of craniological research was suitably commemorated by Sir William Turner, Mr. Brabrook and the President. Mr. A. W. Moore and Dr. J. Beddoe described the anthropology of the Isle of Man, and Dr. Garson illustrated the mean bodily proportions of the members of the British Association from measurements which had been taken at numerous meetings. Dr. D. Hepburn gave a very elaborate comparison of the femur of *Pithecanthropus* with numerous femora of various races. He found, as Dr. Manouvrier had already done, that all the peculiarities could be matched in recent bones.

The elaborate report on the north-west tribes of Canada was read, and Prof. E. Adlum gave a very interesting account of the Coast Indians of British Columbia. Graf von Pfeil described from personal experience the Duk-duk, Eineth and Marawot ceremonies of the Bismarck Archipelago. Mr. C. H. Read, of the British Museum, strongly urged the formation of an Imperial Bureau of Ethnology analogous, but not necessarily similar to the splendid Bureau at Washington; this idea was warmly supported by several speakers. Prof. A. C. Haddon drew attention to the necessity for the immediate anthropological investigation of Oceanic Islands and other districts where the natives are disappearing before or becoming modified by the white man. Mr. S. H. Ray pointed out that British New Guinea was at the present moment a very favorable field for such research.

The problem of storehousing anthropological and archæological collections formed the subject of an animated discussion. Prof. Flinders Petrie proposed the erection in a country site, not too far from London, of long, low well-lighted stores, which would be capable of indefinite extension and where associated objects of any number or size could be kept together for reference. Some of the details of his scheme appeared impracticable to several speakers, but there was a general feeling that this is a question that must be faced sometime or other. No satisfactory scientific work can be done unless there are long series of specimens for comparison and we must also consider the needs of posterity.

The general interest in anthropology was increased by Prof. Flinders Petrie's evening lecture on 'Man before writing.' In Prof. W. H. Goodyear's lantern demonstration at one of the conversationes, the false perspective of numerous mediæval Italian churches was abundantly proved. A novel feature in connection with the meeting was a loan exhibition in which numerous objects referred to in the papers were exhibited.

A. C. Haddon.

Cambridge, England.

THE INTERNATIONAL PSYCHOLOGICAL CONGRESS.

The Third International Congress for Psychology was held at Munich, August 4–8. Of the 550 who registered as members, nearly 400 were present. Germany was naturally represented by the greatest number, but France and the other neighboring countries also sent large delegations. From England there were twelve, and from the United States there were twenty-six present.

The Congress began with an informal reception on August 3d, at the Café Luitpold, thus giving the members an opportunity of meeting each other before the sessions. The other social arrangements were numerous and varied, and made an interesting and pleasing commentary on the hospitality and the customs of the German people.

These included a reception in the Rathhaus, given by the city of Munich, at which Professors Richet (France), Baldwin (U. S. A.), Sidgwick (England), Tokarsky (Russia), Sergi (Italy), Flournoy (Switzerland), Heymans (Holland), Saliger (Austria), and Geijer (Scandanavia), representing their respective countries, brought greetings to the land whence had come much of the impetus to the present work in the science. Wednesday noon, the Congress was invited to partake of a 'Frühschoppen,' and to view the arrangements of the 'Brauerei zum Spaten;' the same evening, in honor of the Congress, there was a presentation of 'Don Giovanni' in the Royal theatre. The next noon the English and the American members lunched together, and in the evening there was a Congress dinner. A lawn party and an excursion on the Starnberger Sea, which had been arranged, were given up on account of the weather, and in place of the latter, on Friday evening, there was another informal reception, bringing the Congress to a close.

At the business meetings it was decided to hold the next Congress at Paris in 1900. The following officers were then elected: President, Prof. Th. Ribot; Vice-President, Prof. Ch. Richet; General Secretary, Prof. Pierre Janet; all from Paris. In addition to these officers, the following were appointed as members of the international committee of organization: Professors A. Binet (Paris), P. Flechsig (Leipzig), H. Ebbinghaus (Breslau), Th. Lipps (Munich), C. Stumpf (Berlin), H. Sidgwick (Cambridge, Eng.), G. F. Stout (Cambridge, Eng.), J. Sully (London), W. James (Cambridge, U. S. A.), J. M. Baldwin (Princeton), E. B. Titchener (Ithaca, N. Y.), E. Morselli (Genua), G. Sergi (Rome), S. Exner (Vienna), and G. Heymans (Groningen, Holland).

The work of the Congress was divided into general and sectional sessions. In the first general session the President, Prof. C. Stumpf (Berlin), after formally opening the Congress, read his presidential address and then presented the Minister of the Interior for Church and School Affairs of Bavaria, Count von Landmann, who welcomed the Congress to Germany and to Bavaria in the name of the government. The vice-mayor, Bürgermeister Brunner, next welcomed the Congress in the name of the city of Munich, and the rector of the University, Prof. von Baur, gave a welcome from the University. Then followed a paper by Prof. Charles Richet (Paris), 'On Pain,' and one by Prof. von Liszt (Halle), on 'Criminal Accountability.' At the second general session papers were read by Prof. P. Flechsig (Leipzig), 'The Association Centers in the Human Brain' (with anatomical demonstration); Prof. G. Sergi (Rome), 'Where is the Seat of the Emotions?' and Prof. W. Preyer (Wiesbaden), 'The Psychology of the Child.' The third general session included the following papers: Prof. F. Brentano (Vienna), 'Theory of Sensation;' Prof. Pierre Janet (Paris), 'The Hypnotic Influence and the Necessity of Caution in its Use;' Prof. H. Ebbinghaus (Breslau), 'A New Method for Testing Mental Capabilities and its Application to School Children;' Prof. Th. Lipps (Munich), 'The Idea of the Unconscious in Psychology.' The remainder of the papers presented were read in sectional meetings. The divisions into which the work was separated were as follows:

I. Anatomy and physiology of the brain and the sense organs. Psychology of the senses. Psycho-physics.

II. Psychology of the normal individual.

III. Pathological and criminal psychology.

IV. Psychology of sleep, dreams, hypnotism, and allied phenomena.

V. Comparative and educational psychology.

A short account of some of the papers follows. At the general sessions—

Prof. C. Stumpf (Berlin), in his presidential address, first reviewed briefly the two previous congresses, calling attention to the fact that this one was a congress for *psychology*, while the first one at Paris was a congress for *physiological psychology*, and the second one at London was a congress for *experimental psychology*. He then discussed the different theories of the relation of body and mind, and concluded with a short account of the advance in psychology since the time of Descartes and Spinoza, and a brief reference to some of the present problems.

Prof. Richet (Paris) treated 'Pain' from the biological standpoint. He showed that in general pain is caused by strong stimuli and by every cause which greatly modifies the state of the nerves. He finds in it, with its fundamental character of persistence in memory, one of the seasonable provisions that guards the individual from injury and from the shortening of life, and he considers it a powerful motive, particularly in man, pushing him unceasingly toward perfection.

Prof. von Liszt (Halle a. S.) considered the question of 'Criminal responsibility.' He thought that the questions of the freedom of the will and of mental capabilities would not settle responsibility, but rather the psychological considerations of the feelings and of the will.

Prof. P. Flechsig (Leipzig), in his paper 'On the association centers in the human brain,' told of his work (first announced two years ago), on the brains of the embryo and of the young, by which he found the gradual development, or ripening, as he called it, of the different portions of the cerebrum; first, the parts connected with movements and the senses, and then the connecting parts, the association fibres. A lantern demonstration with brain sections, showing the different stages of development, followed. The paper led to a long and heated discussion between the physiologists and pathologists and the psychologists in which, beside the reader of the paper, Lipps, Ebbinghaus, Stumpf, Forel and Dechterew took part.

Prof. G. Sergi (Rome) discussed the question 'Where is the seat of the emotions?' After reviewing the different theories of the emotions and the evidence in support of them, he turned to the question and brought forth evidence to show that the emotional center is not in the brain (cerebellum or cerebrum), but in the medulla oblongata, and he considered the seat of the emotions to be peripheral, and due to changes in the blood supply, to breathing and to nutritional changes.

Prof. W. Preyer (Wiesbaden) made an appeal in his paper, 'The Psychology of the child,' for the closer and more extended study of the psychic life of the child, which represents in itself the whole mental development of mankind.

Prof. F. Brentano (Vienna), in his discourse, treated of the theory of sensation, dealing particularly with the concept of intensity.

Prof. Ebbinghaus (Breslau) next told of some of the practical uses of experimental psychology. His paper, 'On a new method for testing mental ability and its application to school children,' was an account of some experiments he had made on school children, testing their ability to memorize, their accuracy, etc., under the varying school conditions, to discover the most favorable conditions for school work.

Prof. Pierre Janet (Paris) spoke of the influence of the hypnotizer over his subject, of the feelings sometimes aroused in the latter toward the former—love, hate, terror, veneration, jealousy—which feelings sometimes exist even when the subject is not in a somnambulic state. He consid-

ered the influence due mainly to weakness of will and to dependence on others, the subjects thus needing some one to decide for them.

Prof. Th. Lipps (Munich), the Vice-President, considered the subject 'The idea of the unconscious in psychology.' For a true science of the mind the speaker found it was necessary to consider the unconscious, and he held that a psychology which took account only of our conscious experiences would be an '*Unding*.'

The following papers were also announced for the general sessions, but were not read: G. Stanley Hall (Worcester, Mass.), 'A Genetic Study of Primitive Emotions;' G. F. Stout (Cambridge, Eng.), 'Unanalyzed Individuality as a Dominant Category in Savage Thought;' F. W. H. Myers (Cambridge, Eng.), 'The Psychology of Genius;' W. von Tschisch (Dorpat, Russia), 'Memory for Sense Perceptions; A. Binet (Paris), 'Individual Psychology.'

The following are short accounts of some of the papers read at the sectional sessions:

SECTION I.

Dr. A. Tokarsky (Moscow) considered the question of the shortest time of a simple reaction. He excluded only those experiments as premature which either actually preceded or coincided with the stimulus, and found then that the shortest reactions were from .005 to .01 second.

Prof. H. Ebbinghaus (Breslau), in his communication on the psycho-physical method of right and wrong cases, pointed out some errors in the use of the method and discussed the relation it bore to the method of mean error.

Prof. O. Külpe (Würzburg) communicated some preliminary results he had obtained on the influence of the attention on the intensity (brightness) of a sensation. He had experimented with visual stimuli and found in the diversion of attention by convergence and accommodation that one observer made an under-valuation, while two others over-valued the intensity. The paper led to a discussion between Münsterberg, Ebbinghaus, Stumpf, Exner, Lipps and the reader of the paper.

Prof. G. Martius (Bonn) announced some results on the influence of the intensity of light on the brightness of the color sensation. His experiments showed that the brightness of the color sensation bears a functional relation to the objective intensity of the light. Red, orange, yellow and purple decreased steadily as the intensity decreased; the other colors increased up to the value found by the method of minimum intensity.

W. S. Wadsworth (Philadelphia) gave an account of some experiments made with persons of defective color vision. He exhibited many charts showing effects of education, association, sex, temperament, etc. He referred to the difficulties experienced in making comparisons with results of previous investigators and, to obviate this in the future, suggested the appointment of an international committee to consider and decide upon a standard series of colors.

Dr. G. M. Stratton (Berkeley, Cal.) described some preliminary experiments he had made on 'vision without inversion of the retinal image.' The aim of the work was to test the assertions, made by the exponents of the 'projection' and of the 'eye movement' theories of upright vision, that the inversion of the retinal image is necessary for upright vision. The experiments were made using only one eye, but they showed a rapid reharmonizing of tactual and visual localization. The speaker concluded, therefore, that the experiment proved that the perception of the field as 'upright' is not dependent on the inversion of the retinal image.

Prof. R. Taverni (Catania, Sardinia) communicated some results on 'States in

the other senses analogous to Daltonism.' Among the number of people examined by him during the past thirteen years he found 161 such abnormal people, of whom 108 were hearing defectives, 23 taste, 18 touch, and 12 smell. Of the whole number (161) only two were also color defectives. The proportion of men to women for the several defects were: hearing, 2:1; taste, 1:3; touch, 1:5; smell, 1:2. Among the number it was found that there were three times as many of the poorer classes as of those in better social condition.

Prof. W. Wendensky (St. Petersburg) reported some experiments to determine what influence the stimulation of a cortical center on one hemisphere of the brain had on the corresponding center of the opposite side. The results were very variable, but led to the conclusion that there was a functional relation between the hemispheres much closer than has been usually admitted.

Dr. E. Hering (Prague) propounded and attempted to answer the question 'In how far is the integrity of the centripital nerves a condition for voluntary action?' His conclusion was that if *all* centripital stimulation cease, voluntary acts would also cease, but if after centripital paralysis the excitability of the nerves still remained, then one could not say that acts might not be voluntary.

Dr. L. William Stern (Berlin) discussed the manner in which we perceive changes. These he found to be: (1) through momentary perception; (2) through prolonged perception, and (3) through the comparison of an event's separate phases.

SECTION II.

Prof. H. Flournoy (Geneva) reported experiments made on the association of figures. Observers were intructed to write as quickly as possible single numbers (those from one to nine), thinking of them only as single, and writing pêle mêle, not in the order of the figures (*e. g.*, 1. 2. 3. or 9. 8. 7). The results showed considerable individual differences both in the quantity and in the numbers written. A decided preference for the numbers 3, 5 and 7 was noted and also a seeming dislike for 2, 6 and particularly 1. The individuals were found to be constant in their preferences, etc., over a period of four years.

Prof. L. Edinger (Frankfort on the Main), in answer to the question "Can psychology derive benefit from the present state of brain anatomy?" considered that from anatomical study psychology had much to learn, and particularly was this the case for comparative psychology in experimenting on the psychic condition of animals.

Prof. J. Courtier (Paris) made some preliminary announcements on memory for music. He had used as subjects the professors and students at the conservatory of Paris and had also experimented with other musical people, singers, instrumentalists and composers.

Prof. V. Basch (Rennes) spoke of 'Method in æsthetics.' He considered it entirely unscientific to follow exclusively the logical, or metaphysical, or psychological lines when dealing with this subject, and concluded that any proper treatment must include the three, first psychological, then logical, and finally metaphysical.

A. T. Shand (London) discussed, in his paper, 'On the psychological hypotheses concerning the relation of the mind and the brain,' the two theories most commonly accepted, viz: those of 'parallelism,' and that of 'interaction.' He showed that the two are not mutually exclusive and that when taken together would make a better hypothesis than either separately. He attempted to reconcile and combine them.

Prof. C. Ueberhorst (Innsbruck) analyzed out the psychic factors in visual perception.

J. Philippe (Paris) gave the general results he had obtained in mental imagery. He showed there were three ways of studying the imagination: (1) considering the way in which our mental images are formed; (2) taking the contents of our imagination at different times, and (3) studying the way in which our mental images disappear or fade away. His experiments were made with the last method chiefly, and he considered only visual images. The visual images of objects seen or felt were noted immediately after, after a lapse of 15 days, after 30 days and after two months. It was found that details tended to disappear and that the typical form became more and more accentuated, making thus a general image of the object.

Prof. G. G. Gizzi (Rome) discussed 'Feeling and its Laws.' The laws he deduced were as follows: (1) The sensation and the feeling are directly proportional to the sensibility of the individual and the inversely to the mental distraction. (2) During the persistance of a stimulus the intensity of the sensation decreases while the intensity of the feeling increases, the increase or decrease being directly proportional to the culture and education of the individual and inversely proportional to the mental distraction.

Dr. W. Jerusalem (Vienna) discussed the origin of the number concept. He considered that our notion of number arose through the existence of similar objects in nature and from our function of judgment. Our arithmetical judgments, therefore, are general laws of physical occurrences and have an unconditioned and indubitable validity.

Dr. S. S. Epstein (Berlin) described some experiments on the influence of light stimulation on the blood supply. All colors were found to have a stimulating effect, red having the most and green the least.

SECTION III.

Prof. A. von Strümpell (Erlangen) gave an account of some interesting diseases of memory, with loss of mental images for periods of time past, some cases of word amnesia, etc.

Prof. Pierre Janet (Paris) announced some interesting results on 'the times for simple reactions in their relation to diseases of attention.' Different classes of insane people were tested, and the curves obtained showed the feebleness of attention in the melancholic, the oscillations in the neurasthenic and its rapid fatigue in the hysterical cases. The reactions, if continued beyond fifteen or twenty minutes, in some cases, particularly with paranoiacs and hysterical patients, become automatic, so that the reaction cannot always be taken as a sure guide of the state of attention.

Dr. O. Näcke (Leipzig), in his paper on 'Criminal Psychology,' defined the materials with which to work as follows: (1) Those generally classed as criminals (a heterogeneous mass). (2) Those mentally unsound, epileptic, imbecile, etc. (3) The lowest strata of society.

Dr. A. de Jong (The Hague) considered 'the psychology of false ideas of the insane.' He thought they were only secondary symptoms and as logical developments. Their character cannot determine the diagnosis of the case, he thought, but we must look rather to their developments.

Drs. G. C. Ferrari and Bernadini (San Maurizio, Italy) described some experiments to test the musical memory of idiots. Simple melodies were used and the idiots required to repeat immediately after, as well as possible, what they had just heard. 60 (39 men and 21 women) out of 100 (60 men, 21 women) could repeat the chord C.E.G.C., while 12 (7 men, 5 women) were found to have (for idiots) good memory for music.

SECTION IV.

Dr. E. Roemer (Heidelberg) described some experiments in progress on the relation between sleep and mental ability. The observer's memory was tested, and the accuracy and speed of work, the association time and time of discrimination, were taken at different times after awaking and after different periods of sleep.

Prof. J. M. Vold (Christiania) reported some experiments on visual images in dreams. Objects were looked at just before going to bed and dreams noted. It was found that very seldom was the entire appearance of the object (if a dream happened to be about it) changed, but that there was usually a curious change in color.

C. Lloyd Tuckey (London) gave the results of his use of hypnotism for the cure of chronic alcoholism. Of the 65 cases he had treated in eight years, 15 were permanently cured, and 7 greatly benefited.

Dr. Bonjour (Lausanne) gave an account of cases in which suggestion had been used as a means of curing disease. He used his illustrations to show the influence of the psychic over the material part of our nature, of the mind over the body.

Mrs. Sidgwick (Cambridge, Eng.) made a final report on 'the statistical enquiry into sensory hallucinations experienced while awake by persons in ordinary health.' She referred to the Proceedings of the Society for Psychical Research for the full report, but treated more fully of its bearing on the evidence for telepathy. As there were a number present who considered the results could be explained in a different manner, the paper received a full discus sion.

Prof. Sidgwick (Cambridge, Eng.) next considered, in his paper entitled 'Experiments in involuntary whispering and their bearing on alleged cases of thought transference,' the work of Lehmann and Hansen published in Wundt's *Philosophische Studien*. As neither of the authors were present, however, the speaker did not go into details, but showed briefly that, although the Danish investigators might draw the conclusions they did for the experiments made with the percipient and agent in the same room, their explanation would be slightly overdrawn for results obtained when the percipient and agent were in different rooms, and again when the matter communicated was not numbers but complex drawings.

Dr. T. Crocq (Brussels) discussed the conditions of sensibility and of the intellectual functions in hypnotized subjects. He found that without suggestion there was in general a diminution of sensibility to pain, and that the special senses—sight, smell, taste, even hearing—lose their functions unless suggestions to the contrary are given. Memory without suggestion is not exalted; with proper suggestion there may be amnesia, but this does not always occur. There is also a rest in thought until some suggestion comes to rouse the brain.

Dr. J. M. Bramwell (London) gave an account of experiments on the appreciation of time by somnambules. Suggestions were given for doing acts after lapses of varying times. The results showed the three possible things that could have happened, viz.: utter failure, partial success and total success. The same speaker also discussed the advantages and disadvantages of the use of hypnotism in medical and surgical treatment, mentioning cases in which it had been used with success.

Dr. H. Stadelmann (Saal a. Saale) told of the value of suggestion in the cure of disease, particularly with mental disorders.

Dr. A. Voisin (Paris) also discussed the the application of hypnotic suggestion to the treatment of mental maladies. His success in its use was great in those cases characterized by fixed ideas, hallucinations, perversions, and moral insanity.

SECTION V.

Dr. M. Friedmann (Mannheim) considered the problem of the development of judgments in primitive peoples.

Dr. H. Gutzmann (Berlin) discussed the relation between the speech of the savage and the child's speech. He showed that the child's learning to speak was an exact parallel to the development of speech among primitive peoples.

Dr. A. Marro (Turin) spoke of the psychoses of puberty. He divided these into three classes: (1) Psychosis of first reflection; (2) Psychosis, presenting the character of *hêbêphrênie*, and (3) psychosis from organic, either congenital or acquired, causes.

J. Friedrich (Würzburg) described some experiments to determine the effect of continued work and of work with occasional periods of recreation on the accuracy of the work of school children.

J. W. David (Warschaw, Russia) announced some results on the development of school children.

S. I. Franz and Dr. H. Griffing (New York) communicated some results on the conditions of fatigue in reading. The experiments were to determine what kind of type, paper and illumination were least fatiguing to the eye. The most important condition was found to be large type, but for the most economical use of the eyes good paper and good illumination are necessary.

M. Vaschide and G. S. Ferrari (San Maurizio) reported the results of some experiments on the memory for lines. Lines of from 2 to 40 mm. long were used and it was found that the shortest ones were more accurately reproduced. Distraction, strange to say, favored the memory, the best results being obtained under these conditions. Alcohol had a varying effect, causing the smaller lines to appear greater and the larger ones smaller.

Dr. J. Cohn (Berlin) gave the results of experiments on individual memory differences. The acoustic type of people were found to be better memorizers than the others, but this may be due to the fact that the experiments were more favorable to them than to other types.

Dr. A. de Jong (The Hague) discussed the value of hypnotism and suggestion as educational helps, and concluded that the use of hypnotic suggestion would be of great use to teachers, particularly for cases of perverse character, etc.

During the Congress there was a demonstration of Röntgen rays, showing the beating of the heart, by Dr. M. Boy, of Berlin; a demonstration of psychological apparatus by Dr. Schumann, of Berlin, and by a number of German mechanicians.

Finally, any general account of the Congress would seem incomplete without a word of commendation for the General Secretary, Dr. Frhr. von Schrenk-Notzing, to whose energy and work much of the success of the general gatherings is due.

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THE PRINCETON SESQUICENTENNIAL.

THERE are probably no other institutions so enduring as those devoted to the advancement of education and learning. Governments come and go, while universities maintain their continuity. The College at Princeton has a long and honorable history and it was fitting that the hundred and fiftieth anniversary of its foundation should have been celebrated with unusual magnificence. Our readers are already fully informed of the nature of the ceremonies by the detailed accounts published in the daily papers. It is, however, fitting that we should record in this JOURNAL the events of scientific significance.

Dignity was given to the celebration by a series of lectures during the preceding week. As we have already noted, the