

lace cap on her head, would read them entrancing stories in a soft, quiet voice that seemed always to be telling exciting secrets. And then they would be roused by the opening of the door and the presence of Nurse would be discovered, standing in the doorway, like a bad fairy. The hateful hour for bed had arrived. 'Not yet! Not yet!' wailed David and Janet in chorus. 'One moment, Nurse! *One* moment!' Granny would say in her gentle voice, 'We're just finishing.'

When at last they returned home, years and years seemed to have passed, so that when, one day at lunch soon

after their return, Mother told them that while they were away Nanny had died, they hardly realized what it meant. And not many months after that, when Martha came back from one of her Sundays out, she brought them the news that Robert had married again. 'Married again?' said Mother indignantly. 'And I've been sympathizing with him *all* this time.' 'Well, 'm,' said Martha, 'I think he can be excused. You see, there was no one to look after Joseph.' But that did n't seem to console Mother. She gave a little angry snort. 'And to *think*,' she repeated, 'that I've been sympathizing with him *all* this time.'

CHARCOT, REPAIRMAN OF SOULS ¹

BY CHARLES LALLEMAND

ON the page devoted to medical science, among the great names which the Institut de France is proud to count upon its Book of Gold, stands that of Charcot, long since ranged by popular voice after Claude Bernard and Pasteur among those pioneers who, disdaining the beaten path, struck out along new avenues of human knowledge and opened to it domains hitherto unexplored. It is for voices with more authority to recall upon the occasion of his centenary the masterly discoveries of Charcot in the spheres of physiology and pathology. More modestly, I should like to make the man himself live again for a moment, for Charcot's noble character and high honesty of conscience as a man equaled

the same qualities as they appeared in the scientist.

The son of a modest wheelwright established in Paris in the *cité Trévise*, Jean Martin Charcot belongs to the group of those self-made men whom a powerful intelligence joined to a capacity for furious industry permitted to climb almost all the rungs in the social ladder, from bottom to top, having at the start almost nothing upon which to stand. He was the oldest of four sons whose ages were close together. The father wished to give careful instruction to all, but his means sufficed for one alone. No matter; the prize should be submitted to competition; and the four boys were all placed for several months in the Lycée Bonaparte, where the one who made the best record was to con-

¹ From the *Revue Bleue* (Paris literary and political semimonthly), August 1

tinue in studies, while the others went back to the shop.

Jean Martin won, but his brothers, far from being envious, saw in him the hope of the family and set themselves to giving him a chance. To the frozen little closet where he spent part of his nights working, they took turns in bringing a red-hot cannon-ball set in a bucket of sand, — an anticipatory edition of the modern electric heater, — with which the student could keep warm.

On receiving his Bachelor's degree, Charcot hesitated as to the road he should follow. He had a strong inclination toward painting — but how interesting he also found the veterinary clinic which stood directly across from his father's shop! Weighing all things well, he decided to be a physician. Four years later, in spite of his excessive timidity, he emerged triumphant from the difficult competition of the internship. Chance sent him to the Salpêtrière, a huge hospital then inhabited by indigent old ladies, where he became interested in nervous diseases and was soon struck by the idea that there might be possible relations between the organic troubles and certain lesions of the nervous centres which the autopsy revealed. He was quick to see the possible value of conducting such investigations in an establishment like the Salpêtrière where observations made during life could be checked by the post-mortem examination. He collected the most complete notes on each patient, and a few years later on, when he had become a hospital physician, he asked for and obtained without difficulty the assignment, then little desired, to the Salpêtrière.

In his miserable laboratory, a little kitchen under the roof of an unused dwelling, Charcot pursued his studies, and, soon realizing the exactness of his expectations, he ventured to formulate

that doctrine of nervous localization which, skillfully employed during the Great War, was to save, by means of judicial trepanning, thousands of wounded afflicted with consecutive paralysis due to lesions of the brain. A little later Charcot created a model clinic and an institute to which a throng of students and physicians came pouring from the four corners of the earth.

But of all Charcot's investigations, those which have done most to spread his fame, though actually they constitute the least part of his work, are those that relate to hypnotism. One must be pushed on by an irresistible love of the truth to dare, as he dared, to lift a corner of that veil which covers the domain of the marvelous and to be willing to submit to the vulgar laws of physics those mysterious phenomena which have always been presented to public credulity by sorcerers and charlatans as the manifestations of supernatural power or astral influence. The merit of Charcot in opening this new Pandora's box is not slight. In the Middle Ages this courageous gesture would have marked him out for the stake. In our period of gentler customs it would have exposed him at least to ridicule, perhaps even to attacks from which death would not have delivered him. And yet how greatly these troublesome problems simplify themselves when we realize that in them things simply happen as if in certain conditions one brain were able to read another brain.

To transmit his thought, man habitually employs two means, speech and gesture, using as intermediaries of hearing and of sight two physical agents, sound and light. What is there impossible in the thought that, like the sympathetic vibration of two resonators tuned to the same note, the thought assimilated to some par-

ticular vibration should be able to pass directly from one brain to another that is physiologically attuned with the first? According to the affinities of the beings brought into one another's presence, the transmission would be more or less definite, more or less complete. In certain cases one of the subjects might mentally be able to impose his will upon the other. The hypothesis may seem daring; but how many other equally adventurous ideas — such as universal attraction, or the existence of two electricities, which are mere tricks of speech used to translate observed facts — science introduces every day to explain new phenomena. In any case, the hypothesis of which I speak, once admitted, throws a sharp light upon a number of things that are apparently full of mystery. It explains the extraordinary influence that certain men exercise upon their kind, — teachers over their students, generals over their troops, orators over their crowds, — although few of the individuals may actually hear them. Thus one comprehends the dominance of hypnotizers who control their fellows, and the founders of religions — men like Peter the Hermit, Mohammed, Bonaparte, and Gambetta. This explains the way in which whirling tables work, or the disturbing exactness of an extralucid sleepwalker consulted by a client with regard to facts known to himself alone. One comprehends also the hesitation and the vagueness of those horoscopes that profess to foretell the future. Autosuggestion seems to be the result of a simple bending back of thought upon itself, like those rays of light that give back to the observer in front of a mirror his own image. In a certain sense telepathy becomes something very like that radiotelephony which only yesterday was a stupefying discovery and which twenty years ago would have

been regarded as a miracle. Think of it! Thanks to a doubly inversed transformation at their departure and their arrival, sound-waves are carried to the antipodes on the wings of Hertzian waves, and, traveling through space in all directions and without being stopped by any obstacle, penetrate into the most obscure recesses.

Now nature has given man an ear that is coarse and imperfect, permitting him to grasp only in the rough, and without discrimination as to their origin, a few scant octaves in the infinite scale of the ether's vibrations. Yet here, by his genius, he has constructed a kind of artificial ear in which, by filtering them to his taste, if one may say so, he receives the innumerable harmonies that furrow the atmosphere. No matter where he may be, he can, if he likes, in a few minutes be present, as if in person, at a sermon in St. Paul's Cathedral in London, or else be listening to a concert in the Capitol at Rome, or to a lecture in Zurich.

Telepathy proposes nothing more marvelous than that, and I am ready to submit these reflections to the criticism of psychologists and physiologists. Whatever they may be, Charcot's opinions on these matters, as he himself declared, were imperfect, and even mistaken in some respects. To him remains, nevertheless, the immense merit of having been the first to apply a scientific method to the study of questions previously abandoned to empiricism. If he did not approach them all, it is because beyond a certain point, as Bacon says, nature becomes deaf to our appeals and responds to them no longer.

As I have said, Charcot the man equaled in stature Charcot the scientist. His modesty was extreme; his goodness and generosity no less. His patients and his pupils all adored him. The sight of suffering, even among

animals, he found intolerable, and that motive alone was enough to turn him aside from experimental physiology — a science which he would nevertheless have liked to cultivate. We see him one day administer a masterful rebuke to a coachman who was abusing his horse. Another time, in his property at Neuilly, he leaves his work precipitately to rush into the garden in pursuit of a duck that is seizing a frog.

His sense of justice made him sought as an arbiter in academic disputes, and his decisive intervention in the controversies relative to Pasteur's studies of anger has not been forgotten. It gained him lasting hatred. On the eve of his election to the Institut there appeared in a great newspaper, under the signature of Ignotus, which then was celebrated, a virulent article directed against him. A few years later, among the numerous requests for consultations at home which came to him from the poor — the only ones that he accepted — he found a pitiful letter from an unfortunate paralytic, begging him to come. He went.

'Master,' said the sick man, 'I don't know how to testify my gratitude for your visit. After thinking everything over, I want to tell you something. I am Baron Platel, the author of that wretched article you know about, which will remain the regret of my entire life. My excuse, if there is any excuse, is that I allowed myself to be forced by my poverty into becoming the instrument for the envy of three of your colleagues. Now that you know me, do you still want to cure me?'

'Of course,' said Charcot; 'but in that case there will be no question of fees.'

Is another example of his disinterestedness necessary?

A highly eclectic spirit, wrongly

regarded as a materialist, — he, who included Cardinal Lavigerie among his best friends, — Charcot, knowing the enormous influence of the mind over the body, used the faith of his patients whatever form it took — faith in the doctor; faith in the treatment; faith in medicine, which he urged them to take so far as it helped; confidence even, when other things failed, in supernatural intervention. He used regularly to send his patients to the miracle-working shrine at Lourdes if they were numbered among the faithful, but reputation of curing nothing but neuropaths soon brought the place into disfavor. Charcot was not disturbed. A patient who was beyond doubt afflicted with nervous hemiplegia appeared at the clinic. She believed in miracles. Charcot instantly decided to send her to Lourdes, and in order to win her a more favorable reception he gave her a bulletin with the false statement, 'Hemiplegia of organic origin.' His pupils were stupefied. 'But consider, master,' said one of them, 'with such a certificate you will give your enemies a terrible weapon against you.'

'What does that matter,' he replied, 'so long as the patient gets well? Is n't that the main thing?'

One might multiply touches of this sort, but I have said enough. How fine a soul was concealed beneath the cold and severe mask of Charcot! His life might provide an example among scientific men. Certain of his doctrines may fall into oblivion, but his name will remain in the memory of posterity as that of the father of neurology and the founder of that great school at the Salpêtrière which has done so much to limit the realm of mystery.

LIFE, LETTERS, AND THE ARTS

THE 'WHY' OF GRAY HAIR

To a recent number of *T. P.'s and Cassell's Weekly* Professor J. Arthur Thomson—who is a kind of self-appointed British pope of popular science, and a very good one too—elucidates the causes that make people's hair turn gray. The subject was dealt with very successfully a number of years ago by Professor Poulton, the Oxford entomologist, in his book, *Animal Colouration*, on which Professor Thomson is evidently basing his own ideas.

The story of the responsible bankers whose hair turned gray in a single week during times of crisis like the World War is probably quite true. Such cases are not uncommon in history. Marie Antoinette's hair, for example, is said to have turned white in a very short time as a result of emotional distress; and similar instances are recorded by a number of mediæval writers.

The sudden change of color is due to the intrusion of little bubbles of gas into the substance of the hair, which reflects the light and prevents the pigment, which is still present, from showing. When hair goes gray more slowly, it is—or so Metchnikoff believed—due to the officious activity of white corpuscles which have got into the bad habit of prowling up into the hair and devouring the pigment. Many fur-bearing animals change color with the weather, and the mechanism involved in these changes appears to be very much like that which affects human hair.

A NEW RAPHAEL?

WHAT the discoverer believes to be the lost original of Raphael's 'Madonna del Popolo' has turned up in the Ural Mountains in a little town known as Nijny Tagil. Throughout the nineteenth century the Madonna was in the possession of the Demidov family, who owned an ironworks at Nijny Tagil, whither it had been carried by a favorite of Tsar Nicholas I, who had been sent into exile there. It disappeared in the confusion attending the revolution, and has now been brought to light by Professor Grabar. The picture is said to be in fairly good condition, and the work of restoration is to begin at once. How surprised the painter would be if he could learn the adventures and misadventures of his work.



THE INCONSTANT MOON

JULIET knew what she was talking about when she urged Mr. Romeo Montague of Verona to 'swear not by the moon, the inconstant moon,' though it has taken astronomical science several centuries to catch up to her. For a long time it has been observed that the moon is frequently ahead of time, and sometimes behind time, in reaching the position assigned her in the heavens by the all-powerful astronomers. And now comes Dr. Innes, Director of the Union Observatory, South Africa, to suggest in the *Astronomische Nachrichten* that the earth is at fault. Our clocks are adjusted to the rate of our own planet's