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TWO PERSONALITIES IN ONE PERSON.

The record books of the medical profession contain not a few reports of patients living double lives: cases in which there is a periodical loss of one phase of mental life and the assumption or resumption of another very different one. For example, an hysterical subject will have a fit, and on coming out of it will be found to have lost all memory of the past. The mental faculties remain unimpaired, but so far as knowledge goes the patient's mind is that of an infant. With more or less delay she will learn to talk, and to read and work, practically beginning life again at the beginning, and sometimes developing a character quite unlike her first one. The physical basis appears to be the same; but the personality is entirely different, with different temperament, different habits, different tastes, and so on.

Matters will continue after this fashion for an indefinite period; and then the patient will go into another fit, emerging just as she was originally. All the life she has lived since the first fit is suddenly wiped out. She can recall none of it; for the time her second life, and it may have lasted years, is annihilated, and the current of her original life flows on as serenely and naturally as if it had never been broken—until another fit sets her back to the end of her second life, which she takes up again in utter unconsciousness of a break in it. And so her existence alternates between two lives entirely distinct and independent of each other, save that the same body serves for both.

Formerly such alternations of consciousness were explained by spiritual or demoniac possession. The body was supposed to be tenanted by two independent spirits; or the patient's soul was from time to time ousted by some other malignant or benevolent soul, as the tempter might indicate. In our more scientific and materialistic days, the spiritual hypothesis has few retainers: the phenomena in question being much more satisfactorily explainable by supposing that the patient's mental life has been carried on wholly or chiefly by one side of her double brain, and that, when the action of that side is arrested by disease, the unused side takes up the intellectual function and continues until another paroxysm shifts the responsibility to the first used side. So the two lives alternate with the alternating functional activity of the two brains: the reason that such lives are always double and never triple or manifold lying in the fact that we have only two independent brain lobes and no more.

The latest case reported of this sort is exceedingly interesting, and peculiar in that there is a loss of continuity in the life only when the state recurs in which the patient's life began. The case is reported at length in the Revue Scientifique, by Professor Azam, of Bordeaux, where the patient lives. The patient is a married woman, now about thirty-four years old, and has been living a double life since she was fourteen years old. For brevity, we will call her first state of consciousness and its repetitions, A, and the second state and repetitions, B.

At first B came on at intervals of days, and lasted for a few hours only. Twice it was absent for three years at a time, from the age of 17½ to 20½, and again from 24 to 27. Latterly she has lived the life of B most of the time, A recurring at intervals of two or three months, and remaining but for a few hours. Formerly the transition occurred during some minutes of unconscious sleep following violent pain in the temples; now it is almost instantaneous. In A, the patient has always been quiescent and somewhat morose in disposition; in B, she has always been bright, gay, and affectionate. In A, she has no memory of events which happen in B; but in B, she has a full recollection of her life in both states—a remarkable peculiarity in her case, as already observed. In B, her distress, on discovering that there have been blanks in her conscious experience, is extreme; but the practical inconvenience of such loss of memory, formerly great, has become less with the predominance of B. On rare occasions on passing out of B, the patient suffers a brief period of agitation and extreme terror, during which her knowledge is somewhat disordered; at other times there is no apparent derangement except such as commonly appears in hysterical patients.

In her passage from B to A (Professor Azam remarks), she does not emerge from a dream, for a dream, however incoherent, is always something. She emerges from nothing. The time elapsed may be an hour, or it may be months, it is all the same to her; an entire section of her conscious life has dropped out. "To compare her existence to a book from which some pages have been torn is not enough. An intelligent reader might fill the blank, but she can have absolutely no notion of anything that happened in her secondary state."

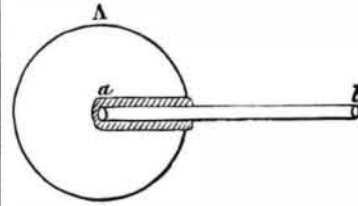
A world of curious problems and complications, social, theological, and other, are suggested by such a case as this. Fancy a person on trial for a crime committed in a previous state of which no recollection remains, with no one aware of the criminal's peculiarity: or a woman to find herself suddenly (to her) surrounded by a family of children, owning her as a mother, yet utterly unknown to her! There is a splendid chance for a sensational novelist. And we should like to hear a convention of clergymen discuss this proposition: Suppose a victim of double consciousness to be a saint in A, and a wretched sinner in B. Her earthly existence terminates in B. Will the two states of consciousness be united by the destruction of the conflicting organs of consciousness? Or will two souls remain, to go to their diverse ways? Again, if there is one, and only one, soul to survive, will it be damned for the sins of B, or saved by the faith that illuminated A?

THERMO-DIFFUSION—A NEW PHYSICAL PHENOMENON

It is a well known fact that gases dilate when heated, unless enclosed in space of invariable volume, in which case the action of the heat is manifested by an augmentation of pressure which increases with the temperature. If the space in which the gas is contained communicates with the air, the heat determines the escape of the gas through the orifice, more or less rapidly, but so that, at a certain instant, if the temperature remain constant, equilibrium will re-establish itself, at which time the pressure of the gas within will be precisely equal to the atmospheric pressure without.

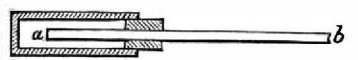
This is easily verified in the following manner: In a block of any porous body (Fig. 1), plaster, for example, a cylindrical cavity is made, in which is introduced and fastened the extremity of an open tube, a b. The outer end of the tube communicates with a manometer. On the block being heated, equilibrium of pressure will be maintained

Fig. 1.



constant, the mercury remaining at a level in the branches of the instrument. A modification of this experiment may be made by substituting for the plaster block a vase of porous earth, such as is used in many galvanic batteries (Fig. 2), which is closed by a pierced cork, through which passes the tube, a b, connecting with the manometer; or instead of

Fig. 2.



using the cork, the tube may be sealed in position by a little plaster. The vessel may remain empty or be filled with pulverulent material; and whatever the form of the apparatus, the results above described will always be the same, provided dry material be always used.

If, however, on the contrary, the material be moist, a new phenomenon presents itself, which, as La Nature states, M. Merget, of Lyons, has recently discovered, and to which he gives the name of "thermo-diffusion." This apparatus is the same as already described, with the difference, however, that the porous vase or block is previously saturated with any volatile liquid. If the device is then submitted to the action of heat, the augmentation of which depends on the volatility of the liquid, and the temperature reached. By employing a thermo-diffuser, 4½ inches long by 1½ inches in diameter, the interior pressure at the limit of dark red heat has been caused to attain that of 3 atmospheres, or 45 lbs. per square inch. This exists as long as the liquid is not entirely evaporated, but ceases as soon as the evaporation is complete, the mercury at once returning to a level in the manometer, regardless of the temperature present. The conditions described as occurring in the dry vase then resume.

This novel phenomenon may be exhibited in still another way (Fig. 3). The manometer being disconnected from the

Fig. 3.



tube, the end of the latter is plunged in water. As soon as heat is applied, bubbles of gas are disengaged more or less rapidly. This disengagement is ultimately connected with the evaporation of the liquid, and is uniform as long as the evaporation continues regularly, but stops as soon as the latter terminates. M. Merget indicates, as follows, the conditions which determine variation in quantity of the gas given off. For similar thermo-diffusers, unequally moistened, the volume of gas disengaged varies with the proportion of water absorbed; and for different thermo-diffusers, wet to saturation, the volumes obtained have varied around an average of about 40 times the volume of the apparatus employed. The velocity of disengagement, which augments as the heat increases, depends on the extent of thermo-diffusive surface, and varies in like manner. It has reached several hundred cubic inches per minute with large porous battery vases.

M. Merget has likewise established that, in thermo-diffusion, it is the moist porous periphery which is the necessary condition of the phenomenon, and not the difference in hygrometric states of the gases. Two saturated thermo-diffusers were placed under entirely dissimilar conditions, one being located in a thoroughly dry exterior atmosphere, and a wet sponge being placed in the interior of the apparatus, the other having highly heated quicklime within, so that in such a case its interior air might be completely dry. Both, being submitted to a feeble calorific radiation, gave sensibly the same disengagement of gas. If the state of dryness or humidity were the cause of the observed phenomenon, it necessarily would follow in the experiment that the currents of gas would be in inverse direction, which was not the case. Still, even with this fact of the porous vase being a prime necessity established, we are yet without a satisfactory explanation of the discovery. It can only be pointed out that the circumstances may play an important part in certain natural phenomena. After studying the gaseous exchanges between vegetation and the atmosphere, M. Merget concludes that a plant should be regarded as a moist and porous system, possessing the thermo-diffusive activity proper to all similar systems under elevation of temperature.

The leaves of aquatic plants, from this point of view, have considerable activity, and the quantity of gas introduced in the plant may reach 30 cubic inches per minute. A leaf having a long petiole (that of the nuphar, for exam-