Notes on Hallucinations. I. By CONOLLY NORMAN.[1]

ALTHOUGH hallucinations are so common and universally recognised as an indication of insanity (Esquirol reckons, probably truly if we count every stage of every case, that they occur in 80 per cent. of cases of mental alienation, and we all know that even with the general public there is no proof of aberration more convincing), yet there are many points connected with the study of hallucination which are worthy of more attention than they generally receive.

In any individual case in which hallucinations are a prominent symptom, one of our first inquiries will be whether they owe their special interest to an unusual extension over the entire sensory field or to an unusual distribution within some division of sense. There are not a few cases in which every sense and many subdivisions of senses, if this phrase is allowable, are attacked; others in which one or more stand out as being the only senses involved, or as being so pre-eminently engaged that the involvement of the other senses is dubious or is concealed.

In the present memoranda I propose to consider the points which arise in a particular case now under my observation. This case is not very complete with regard to extension, inasmuch as the engagement of two of the senses is somewhat doubtful, as will be shown hereafter. One of these is vision and the other the sense of mental action. No one will deny the importance of the sense of vision in respect of our relation to our environment. The sense of mental action, on the other hand, is one which has escaped the notice of the physiologist because it is of no great importance in the normal state, when it rarely appears above the threshold of consciousness. The conditions under which we are conscious of mental action usually approach the abnormal. Thus, when we are very tired, when the attention is exhausted by prolonged occupation with one topic, or fatigued by the strain of endeavouring to fix the thoughts on one subject while another, perhaps reinforced by strong emotion, is constantly obtruding itself into the mind, we feel that our thoughts cannot be controlled, or we feel an intense sense of mental weariness. Perhaps distinct obsession is too absolutely pathological a con-

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dition to be classed together with normal phenomena, but the state analogous to obsession in which the sight of a train coming into a station or the looking over a precipice produces a curious feeling of impulse to precipitate oneself is probably due to an interference with the sense of mental action. Ordinarily, however, and in most matters, we use our minds without any distinct sense of mental action. Nevertheless, in paranoia where we see many of those dissections through disease which often throw unexpected light upon normal function, the sense of mental action is often of great importance, since its morbid manifestations serve to reinforce delusions of malign and occult influence. Nothing is more common among patients of this class than the complaint that their thoughts are influenced, that they are compelled to think in certain ways or are rendered incapable of thought or the like. It is often obvious that we are not dealing with a mere inference in these cases, but that the feeling (sense) of mental action (taking place in an abnormal way) is as distinct as the hallucination of any other sense.

The following is a brief abstract of the case on which I desire to comment on this occasion :—G. L—, a single woman, who had formerly been a servant, whose age was 60, was admitted to the Richmond Asylum towards the end of October, 1901. There was absolutely no history further than that she had been four years in the workhouse whence she came.

She was a well-nourished person presenting no physical indications of disease. The skin of the face, backs of hands, and forearms was much tanned, as if from exposure to the weather. The left pupil was somewhat larger than the right. Both were normal in outline, and responded normally to light and accommodation. Vision good in both eyes.

The facial expression was intelligent and cheerful ; she was tranquil and free from confusion ; she conversed with intelligence. Replying to questions about her condition, she revealed numerous hallucinations, together with delusions of the common organised paranoiac type. Enumerated systematically, the following were the hallucinations found :

General sensibility.—Sharp pains all over the surface, described as " pricks," " stabs of pain," " stitches," " darts " of pain, " like hot sparks from an anvil," together with more constant aching pains in the joints and muscles. Sometimes the sharp

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pain seems to be all over the surface, so that she feels as if surrounded by fire, as if her bed were on fire.

Temperature sense.—Besides the feeling of burning or painful heat, a sense of warmth and flushes of sudden heat are shot over her, or sudden chills and sensations of icy cold.

Muscular sense.—Extreme feeling of lassitude and weariness without cause. The limbs feel like lead, so that the patient is surprised that she can walk, so heavy are her legs, or lift her food to her mouth, so heavy are her arms.

Tactile sensibility.—Here she complains of a peculiar sensation which I have not before found in cases of hallucination. Her hands from time to time feel dry and glossy. The dryness she describes is not a harsh dryness, but a smooth dryness. She states that it is as if her hands were polished, as if they were covered with a thin layer of dried gum, or varnished. Again, she describes the surface as "glassy" or as "silky." This sensation she obtains by rubbing her finger tips together, or touching the fingers of one hand with those of the other.

Now, besides being most likely very rare, this sensation is of singular interest, as corresponding precisely to the sensation produced in patients who are taking belladonna. That the feeling in the latter case may be in part a nervous one is possible, but it is more likely that it is conditioned by the dryness of the skin arising from the suppression of perspiration produced by the drug. It is scarcely necessary to say that my patient has not taken belladonna. Neither does she present that dryness of the skin of the hands which would account for the sensation she describes. There is no reason to believe that she can have associated with a person presenting this silky dryness of the skin; all the probabilities are against suggestion of this sort.

Gustatory.—She tastes intensely acid tastes; also the taste of alum, a strongly astringent taste. These tastes are not stated to be confined to the back of the tongue, as one has occasionally found such gustatory hallucinations to be. The physiological writers state that the true tastes are but four—sourness, sweetness, saltness, bitterness. It appears to me that this list ought to be increased by the addition of two others—astringency and pungency. The sensation of astringency (in this case compared to alum) is certainly a taste. It

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has nothing to do with smell. Its connection with general sensibility is remote if it can be said to exist at all, for the sensation that alum produces on the tongue seems absolutely of a different order from that produced by astringent and desiccating substances applied to the skin or mucous membrane elsewhere than in the mouth. I am not so clear as to pungency. Of course the savours which distinguish different pungent substances from each other are largely a matter of smell, but with regard to the underlying pungency itself, it seems to somewhat closely resemble the smarting which similar substances produce when applied to the surface. Perhaps this sensation of pungency or acridity may be called the least differentiated branch of taste—may, as it were, furnish a connecting link between general sensibility and taste.

Olfactory.—She is worried with odours of fæces and such-like filthy substances, or she smells the scent of fruit, more specifically of lemons.

Respiratory.—There are a series of sensations connected with respiration which I believe ought to be regarded as a separate sense. We are little conscious of them in the normal state, but they readily come prominently into consciousness when respiration is impeded, and disturbances in this region of sensibility are common in the insane. They are frequently associated with olfactory hallucination, but they may exist alone. In the case before us the patient suffers from the feeling that she is, as she expresses it, being fumigated; her breath is caught. She has also "chucking" sensations in the throat, as if her wind-pipe were being forcibly dragged up.

Visceral sensibility.—Sensations of movement in the abdomen and of torsion. "It is like as if a stick was thrust up through me and twisted round." Similar complaints are common among paranoiacs and hypochondriacs. They probably connote the appearance in consciousness of disturbances in regions commonly below its threshold.

Genital sensibility.—An electric wire is thrust into the vagina, and causes much distress, by producing not only pain, but specific sensations.

Visual.—No visual hallucinations appear to exist now and none have existed recently, but the patient says that four years ago, when, as she states, probably correctly, the annoyances

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began, she had a vision once of an angel with a drawn sword. This vision occurred in church. I am not sure how far this is to be regarded as a true hallucination. As is so frequently the case, the patient seems to attribute something less of reality to it than she does to her auditory hallucinations. The latter she *hears*, the former she does not say she *saw*, but she *had a vision of*. It is interesting to note that while in some cases visual and auditory hallucinations coincide as to time and are often closely associated together, it very frequently occurs that hallucinations of vision cease comparatively early, while the auditory remain. In some cases we are told of visions, or what are apparently visual hallucinations, appearing but once and intimately associated with the building up of a whole scheme of delusion. Thus in a case at present under my care the patient relates how a man whom he had never seen before but whose appearance he describes came into the room where patient was working one day. Nothing particular happened then, but the following night voices began to torment the patient as well as all other kinds of sensory disturbances, and these he attributes to the unknown visitor, though he never saw him again nor has he had any further visual images of persons. In such a case, however, unless one should have trustworthy contemporary evidence of the vision, it would seem probable that the sequence of the events is not as described by the patient, and that the vision was not an hallucination but merely a delusion by reminiscence arising out of an endeavour to explain subsequent experiences.

Sense of Mental Action.—Besides the senses ordinarily recognised, disease at least seems to show, as we have said above, that there is a sense of mental or cerebral action. The very frequent complaints of paranoiacs that their thoughts are interfered with, that they are made stupid, that they are made say, do, and think things that they know to be wrong, and that they do not wish to do, do not present themselves in this case. The nearest approach is "they sometimes make me stupid with the tar gas which they make me smell;" but as she appeals to the fact that at such times the eyelids feel heavy, as a sign that she is stupefied, there is probably little true sense of interference with thought. What exists is rather an inference than a sensation.

Auditory Hallucinations.—She hears sounds of buzzing and

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whirring, rolling of wheels and peculiar clattering, all of which she is confident are the sounds produced by the action of electric and magnetic machines. She also hears voices, which talk about her doings and her affairs, which abuse and threaten her, which are often horribly obscene and blasphemous. They talk also of the mode in which they torment her—"now we will put on the machine," "now we will give it to her," and the like. Further, she sometimes hears voices which remonstrate with the others, and speak in her favour.

The auditory hallucinations present many characters, which are frequent. They consist mostly of "voices," and the voices are as usual personal, abusive, indecent, and blasphemous. These characters are sufficiently accounted for by the "egocentric" suspicious nature of paranoiacs, and by the fact that the patient is a respectable elderly woman. Besides the voices (verbal auditory hallucinations) she hears the sound of the machine that is working upon her, and she distinguishes the whirring of wheels, etc. (common auditory hallucinations).

It will be remembered that Séglas has divided auditory hallucinations into three classes: *elementary* (vague noises); *common* (sounds associated with definite objects); and *verbal* (where a voice is heard). These three orders, as he points out, indicate the engagement of physiologically separable functions, the hearing of noise, the recognition of sound, and the comprehension of speech. They are correlated to the conditions existing in another series of pathological states, where we have respectively cortical deafness, psychical deafness, and verbal deafness.

This patient also shows, among her auditory hallucinations, the interesting phenomena of a voice which takes her part against those who abuse and defame her. This has been regarded as a *malum signum* and an indication of chronicity, and my experience coincides with the notion, though I fail, as I have pointed out elsewhere, to perfectly appreciate the theoretical explanation which has been given for its grave prognostic importance.

The points, however, of special interest are that the patient is only conscious of hearing sounds of machinery and the voices of her persecutors, etc., with the right ear, while she is in fact absolutely deaf of that ear. The voices, etc., seem to her to proceed from a point about a foot to the right of her right

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ear. She was, when I first saw her, conscious of being somewhat deaf of her left ear, but did not recognise till I tested her hearing that she was deaf of the right. I gathered that the constant hearing of voices on the right side satisfied her of the soundness of her hearing on that side. Nevertheless I found that she could not hear a watch on the right side, even when touching her ear, nor when pressed against the skull. Being anxious to obtain a skilled opinion about the aural condition, I sent the patient to the well-known specialist, Dr. R. H. Woods, who very kindly examined her for me and courteously wrote to me as follows:

"In the left ear there was no cerumen, the drum was slightly anæmic but otherwise normal in appearance. The hearing distance with a watch was $\frac{1}{4}$; Rinne's test was $\frac{15}{15}$ normal. The tuning-fork placed on the vertex was heard only in the left ear. The right ear was plugged with cerumen; the drum normal in appearance, but would probably look a little anæmic if sufficient time elapsed after syringing. The hearing distance of a watch was lost, Rinne's test was $\frac{0}{15}$. There was no Eustachian obstruction in either ear. The conclusion, therefore, that I draw is that she is suffering from either auditory or labyrinthine deafness in her right ear, the hearing in the left being very fair."

The association of hallucinations of hearing with deafness has long been observed. It was noted by Calmeil some sixty years ago. Brierre de Boismont repeats the observation in his book on hallucinations. Ball more recently goes so far as to mention deafness as a cause of hallucinations of hearing. Savage endeavours to account for the association through the tendency to suspicion that naturally seems to spring up in people who have grown deaf. It is apparently intelligible that the irritation produced by a growing defect, the liability to think that that conversation which is not heard relates to oneself, and the constant straining of the attention in an effort to hear should combine to bring about hallucination. To accept this it is not at all necessary to refer to the old psychic theory of hallucination. It is an equally plausible doctrine if we accept with, no doubt, the majority of modern thinkers, the theory of Tamburini. However explained, the association is one that is quite familiar to most alienists, though it does not appear to have attracted much attention among otologists. It has been

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suggested that tinnitus, the noises arising from cerumen, etc., may give rise in some cases to auditory hallucination by the transitional path of delusive interpretation, but against this notion it may be argued that in the most familiar examples of delusive interpretation there is little that is analogous to the conversion of a vague sound arising in the ear into a distinct verbal hallucination. Besides, in my experience, it has certainly not been with cases where there was tinnitus, etc., that hallucinations were markedly associated, but with cases of complete deafness.

Unilateral hallucinations, either occurring alone or occurring in cases where other hallucinations existed, have been occasionally described. I think they are rare, though Dagonet may be right in saying they are often overlooked. Ball, and subsequently Régis, wrote accounts of a case of unilateral auditory hallucinations coinciding with otitis media of the same side. Mabille has described a case in which a melancholic woman suffered from right auditory hallucinations and was found to have a foreign body in the right external auditory canal. When the foreign body was removed the hallucinations ceased, but the patient remained melancholic. Féré has recorded a case of unilateral hallucination of hearing associated with herpes in the trigeminal region. In such cases peripheral influences seem undoubtedly to have some share in bringing about hallucination. How they act it is not easy to see. Raggi, some years ago, described two cases in which it is difficult to find a common explanation. In one an elderly drunkard, unaffected with any discoverable ear disease, had unilateral hallucinations of hearing and bilateral of vision. In another an old woman had visual hallucinations confined to the right side, the right eye being affected with cataract. After cataract operation the hallucinations disappeared, but recurred shortly afterwards in a worse form than before.

The suggestion that functional disease is more liable to appear in a centre thrown out of gear by the absence of the normal stimulation might be plausible in some cases of auditory hallucination in deafness, whether unilateral or bilateral, but it does not seem to meet certain other experiences. Thus v. Gräfe's case points rather to peripheral irritation. Here a middle-aged man, who had lost the sight of both eyes apparently through panophthalmitis, developed visual

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hallucinations. Both eyeballs were atrophied and contained calcareous deposits. Neurotomy was performed and the hallucinations at once disappeared. It does not seem that the patient had other hallucinations, but he would appear to have accepted the truth of the visual hallucinations while they existed.

It is to be observed that in the case which I have endeavoured to describe, none of the hallucinations are unilateral save those of hearing. Dismissing the doubtful visual hallucinations, and assuming that the auditory took the lead in time, we are on the horns of a curious dilemma. If peripheral irritation or injury was an important element in producing unilateral auditory hallucinations, why should bilateral hallucinations of many other senses appear? On the other hand, with a strong tendency to hallucination of all the senses, why do auditory hallucinations, so common in those that hear and in the deaf, only appear in this case on the side which is deaf?

As I have mentioned, the delusions existing in my case are quite of the classical type. The patient does not know (but suspects that I know) who are her persecutors. She talks of "this system of annoyance and defamation;" dates events from the time when "they began to practise upon me;" believes that the annoyance and "practice" are carried out by means of electricity, magnetism, and "mesmericks." She pities the officers of the asylum who are unable to control the "practice" to which she is subjected, and she describes their personal eccentricities with some astuteness and a marked absence of favourable prejudice.

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