not be alone, is the ideal. Once the patient has been moved to suitable surroundings, do not move him again or in any way ask his confused brain to understand any but the simplest things.

5. *Hydrotherapy*. Great restlessness may be lessened by the application of wet packs or by immersion in a bath. The former is generally better because it is less disturbing.

6. *Diet*. Readily assimilable carbohydrate foods, preferably in fluid or semifluid form, are the easiest to give. The caloric intake should be about 2,500 C. daily. If such high carbohydrate feeding has to be continued for more than three days, or if the patient has been starved previously, thiamine and nicotinic acid should be given parenterally as prophylaxis.

7. *Drugs*. The less of these the better. Give them not at all or infrequently. If you have to use them, see that the dose is adequate, the aim being to produce quietness and sleep. Hyoscine hydro-

bromide 0.5 mg. is not too much. The elderly and sufferers from delirium tremens respond well to hyoscine. Paraldehyde 12-20 ml. is safe. Morphia in doses of 20-30 mg. may be given if the co-existing disease provides no contraindication. It should be remembered, however, that certain patients do not tolerate morphia or hyoscine.

When confronted with a patient who becomes mentally confused or delirious during the course of another illness, the first aim of the physician should be to exclude or treat organic cerebral disease, gross alterations in the cell environment, deficiency states, or drug intoxications. Only then should he regard the case as one of toxic psychosis to be treated symptomatically.

BIBLIOGRAPHY

- CURRAN, D., *Encycl. Med. Practice*, 10, 316.
 DE WARDENER, H. F., and LENNOX, B. (1947), *Lancet*, 1, 11.
 JOLIFFE, N. *et alia* (1940), *J. Am. Med. Assn.*, 114, 307.
 SPILLANE, J. D. (1946), 'Nutritional Disorders of the Nervous System,' Edinburgh. Livingstone.

SPEECH ITERATIONS

('TING A LING' PHENOMENON)*

By MACDONALD CRITCHLEY, M.D., F.R.C.P.

Neurologist, King's College Hospital; Physician, National Hospital, Queen Square.

Like an Englishman abroad who rings the changes in his conversation on the few phrases of which he is the master, so in the same way we meet patients who reiterate certain words, phrases or sentences to the exclusion of all others. Thereby we are reminded not only of our traveller, but of some animal cries and infantile babbling—monotonous repetitions which constitute the whole of the subject's vocalization.

The circumstances under which we encounter these speech iterations are very diverse; some of the cases are frankly psychotic, others are neurological problems. Sometimes they obviously form an aphasic disturbance—a disorder of language. In other cases the defect is one of articulation or speaking. At other times it is difficult to decide, and possibly a disorder both of speech and of speaking coexists. With others again the defect is plainly the result of a thought disorder upon a conceptual plane higher than the zone of language.

Years ago Gairdner applied the term 'barrel-organisms' to all these various kinds of speech

iterations. The term is not a very satisfactory one for the recurrent vocalization is neither a melody nor a theme. More often it is merely a phrase, or maybe a single word. One might, perhaps, use the term 'ting a ling phenomenon,' after the music-hall song which was familiar last century.†

† She only answered 'ting a ling'
 To all that I could say.
 She seemed to live on 'ting a ling'.
 By night as well as day.
 When I asked her if she'd marry me
 All that she could say
 Was 'ting a ling a ling ting,
 Ting a ling a ling ting
 Ting a ling a ling ting tay.'

English folk music embodies a number of meaningless phrases of dubious etymology. Ranging from the old-time 'Hey nonny nonny ney' and 'Fol-de-rol,' etc., we come to the 'Tick-a-tang' and the 'Tararaboomdeay' of two generations ago, the 'Yip I addy I ay I ay' and the 'Hitchy-koo' of the first war and the various nonsense syllables of the Hill Billy songs we hear today. Perhaps these are melodious phrases easy to sing; more probably they represent broken-down sense words or dilapidated speech.

* Being a paper read at La Salpêtrière, Paris, on November 12th, 1947.

Dealing first with the simplest examples, we may mention the phenomenon of *stammering* or *stuttering*. Whatever the pathogenesis or psychopathology of this condition, it is clearly an articulatory difficulty in which the faculty of language is not severely deranged. Possibly there is a delay in the conversion of the engrams into verbalization—a delay which may be due, as Jackson believed, to 'right-brained hurry,' or to inadequate cerebral dominance, or to a hesitancy in self-expression. We need not delay further over an account of stammering except to mention that occasionally it occurs as an acquired phenomenon after a left-sided cerebral lesion, as part of an aphasic disorder. Here again we find a combination of a defect in speech and a defect in articulation comparable with what we also find in Broca's 'aphemia.' We need scarcely mention that stammering in speech is not accompanied by any similar hesitancy or repetitions in writing or in motor activity.

Much more complex is the phenomenon of *palilalia*, which was originally described by Brissaud. This is essentially an organic manifestation, associated with diffuse pallido-striatal disease. Hence we find it as part of a post-encephalitic Parkinsonism or of a pseudo-bulbar syndrome. Palilalia entails the involuntary repetition two or more times of a word, phrase or sentence just uttered. (Example, 'Good morning, doctor, I'm not so well today, today, today, today . . .') The words as they are repeated tend to become more and more clipped or abrupt; the voice to become softer; while the rate of speaking accelerates. The palilalia occurs equally during spontaneous speech and in reply to questions. But palilalia does not appear during the recital of a preformed speech pattern, as for instance when the patient reads aloud, or recites a well-remembered verse or prayer, or when he declaims the days of the week, months of the year, the letters of the alphabet or when he counts. Palilalia occurs not only in the course of intellectual speech or 'propositionizing,' but also—at times—during emotional cries, oaths, interjections and other forms of inferior speech. But this is not always the case, and in some palilalic patients, emotional speech may be devoid of repetitions.

When the patient's utterance consists of a number of consecutive sentences, only the last part of the final sentence shows the palilalic repetitions. It is as though the stream of talk proceeds quite smoothly only so long as the patient has something to say or information to impart, but as soon as he comes to the end of his ideas and wishes to lapse into silence, the speech runs on like a gramophone record that has stuck. Sometimes the speech reiterations amount to 20

or more, the voice trailing off in a diminuent manner, while the lips afterwards continue to make the tiny inaudible movements of a '*palilalic* *aphone*.'

What is the nature of this strange phenomenon? Clearly it is a disorder more of 'speaking' than of 'speech.' Babinski and Mlle. Lévy pointed out that many of these patients exhibit a poverty of speech as though unwilling to embark upon the act of speaking. But once this reluctance is mastered, the patient becomes vocal, and the rate of utterance tends to increase. Then—as in the act of walking—the patient finds difficulty in coming to a halt. It is easier to go on talking than to make the effort of stopping. In other words, as Claude has put it, we can look upon palilalia as a sort of verbal antepulsion and festination.

I have never as yet encountered *paligraphia* in a patient with palilalia. Nor, indeed, would one expect to meet with such a phenomenon, for palilalia is not a manifestation of aphasia or any other disorder of language. But, on the other hand, palilalia may be combined with well-marked *palipraxis*. One of my patients, a post-encephalitic Parkinsonian with severe palilalia, compulsive thoughts and oculogyric crises, also tended to continue unduly any repetitive act such as hammering a nail, combing his hair or brushing his teeth.

We may mention in passing other forms of speech iterations which can be distinguished without much difficulty from palilalia. First, there is *palilogia*, which is an idiosyncrasy of certain rhetoricians and public speakers, who deliberately repeat a word or phrase or a sentence for the sake of emphasis. Field Marshal Montgomery, we are told, used to employ this trick a great deal when addressing his troops; for example:—'We have been fighting the Germans a long time now. A very long time . . . a good deal too long. It's time we finished things off. And we can do it. We can do it. No doubt about that. No doubt about that whatever . . . and so on. Analogous to this palilogia is the irritating use of *verbal mannerisms*, whereby a person in conversation emits *ad nauseam* such trite little phrases as 'Don't you know,' 'I say,' 'As a matter of fact,' and—worst of all—the topical imbecility 'actually.' By gradual steps we pass from these verbal sillinesses to sheer *verbal tics*, where a phrase is enunciated as an obsessional trait, without any pretence at meaning or congruity. I need not give examples except to remind you how often such tic-like exclamations are of a scabrous nature. We at once recall the malady of Gilles de la Tourette or the 'manie blasphematoire' of Verga. We are told by Meige that the Marquise de Dampierre

throughout her long life was in the habit of repeating certain immodest sayings even on the most solemn occasions. In a cathedral city in the South of England lives a silvery haired old lady of saintly appearance who can be seen to mutter quietly to herself whenever there is a pause in the conversation. An attendant cleric was once incautious enough to ask her to repeat her observations a little louder, and was startled to hear a stream of obscenities—not all of which he could understand.

Allied to the verbal tics is the rare though well-known phenomenon of *echolalia*, whereby statements or questions are repeated with or without a change in pronoun. This may also be found as a mannerism in schizophrenics, demented and other psychotics.

In *echographia* we see the slavish repetition in writing of the subject-matter which has just been read. The phenomenon is a rare one—except in journalism—and usually connotes a gross poverty of ideation. A striking example was seen in a patient with juvenile G.P.I., whose letters to his mother were almost a word for word transcription of what she had written to him.

Dear Ern, Just a line in answer to your most kind and welcome letter I received from you and pleased to know you are better than you were and that you will try to steady your nerves for to be home quicker. I am longing to see you as you are to see me Ern but its far better to get well now as you are in the best place for it, but cheer up you won't be long now. Its nice to know you can join in all the sports and get about Ern. Thelma Parry's husband came home this week after four years a prisoner of war. They were all excited in the street. Well, Ern, I had a letter this week from Dave and he told me he had a letter from you. Olive is still home. She did not go to Weston after and Muriel is up at Mervyns home this three weeks. She is coming home next Monday with Mervyn he will be on leave then. I dont know what she intends doing after shes gone back. Well Ern, Mr. Humphreys and Muriel asks how you are and I told him what the doctor said and he told me to tell you to put your mind and getting well to come home on leave and he also said you promised to write to him when you went back the last time you was home. Well, Ern, I will be sending some more cigs and some bake-scones that is if you would like some later on in the week.

To my dear Mother, Just thank in answer to your most kind and welcome letter I received from you pleased to know you. Pleased I am to know you are better than you were that will try dry steady your nerves for to be home quicker. I am longing to see you as you are to see Ern, but its far better to get well now as you are in the best place for it. Just cheer up you wont be long now its nice to know you can join now in all the sports get about. Ern Thelma Parry husband came home this week after four years a prisoner of war they were all excited in the street. Well Ern I had a letter this week from Dave he told me he had a letter from me. Olive is still she didnt go to Weston after. Muriel is up at Mervyns home this three ask she is coming home next Monday she will be on leave know what she

intends doing after she gone know he gone back. Well Ern Mr. Humphrey tell you to put your mind getting well do come home on leave he also said you promised to write to him when you went back the last time you was home. Well Ern I will be sending some more cigs some bakesdonie that is the week.

A fragmentary and literal echographia, or rather an autoechographia is, of course, quite common in the spontaneous writings of aphasic patients. I chose for illustration the following example:—

21 Westbury Park,

Dear Miss Alice Day,

My begin with the bing with with with the the old doing into (with) into into (into) with with (with) (with) will (will) with the oldest (older) the oldest the oldest with the oldest the (the) the oldest.

Yours sincerely,

Meggie Brown.

(N.B.—Words in brackets were elided by the patient.)

Here is a second example of spontaneous writing littered with repetitions:—

Now to eat if one cannot other one can—and if we cant the girseau O.C. Washpots prizebloom capacities—turning out—replaced by the headpatternsmyown capacities—I was not very kind to them. Q.C. Washpots under-patterned against—bred to pattern. Animal sequestration capacities and animal sequestered capacities under leash—and animal excretions. Q.C. Washpots capacities leash back to her—inthetrain from Llanfairfechan armybarracks wishe us goodbye in Llandudno station and turned in several Q.C. Washpots capacities . . .

This specimen, full of neologisms, irrelevancies, incoherence, and verbal perseveration, was executed not by an aphasic patient, but by a schizophrenic. This fact should not have been difficult to predict from the bizzarrities, and the symbolism of the writing. The point should be made, however, that many pathological features are common to both aphasic and schizophrenic utterance, both vocal and graphic.

Kleist believed that in both conditions the speech peculiarities are comparable, and that in schizophrenia there is a *paralogia* arising from a specific disorder in gnostic faculties. He associated speech iterations with lesions in the caudatum, perhaps also in the midbrain. Berze, Grühle, and others, however, would ascribe the fantastic speech of the psychotic to an underlying schizophrenic thought disorder. This places the disorder at a different level within the pre-verbal processes of speech.

But where should we relegate this third example of paligaphia?

This that they were not to have, they were having. They were having now and before and always and now and now and now. Oh now, now, the only now, and

above all now, and there is no other now but thou now and now is they prophet. Now and for ever now. Come now, now, for there is no now but now. Yes, Now. Now, please now, only now, not anything else only this now, and where are you and where am I and where is the other one, and not why, not ever why, only this now; and on and always please then always now, always now, for now always one now; and on and always please then always now, always now, for now always one now, one, going now, rising now, sailing now, leaving now wheeling now, soaring now, away now, all the way now, all of all the way now; one and one is one, is one, is still one, is still one. . . .

This has been taken from a well-known novel* in which it forms an isolated paragraph of unorthodoxy. One can guess its meaning from the context, if not from its content. Advanced students of literary style will no doubt comprehend the technique and approve, but as neuropsychiatrists we may be satisfied in recognizing the nature and perhaps also the mechanism of many of the prosodic unconventionalities.

Echopraxia is a rare symptom which may be associated with echolalia, and it is apt to occur in circumstances of enhanced suggestibility as in a community of hysterics. Both Anderson and I have met with this manifestation in torpedoed sailors days adrift in the Atlantic in a small boat. Tortured by thirst, hunger and cold, the sensorium becomes clouded, mass suggestibility develops together with, at times, shared hallucinosis. One man may proclaim that he sees land, or a ship or a tree laden with ripe fruit growing out of the sea, another sees it too, then another. Then if one man stands up in the boat so does another. If one waves his arms others do the same. Should he bury his head in his hands that movement is repeated by his shipmates.

Verbigeration is a variety of speech iteration which belongs frankly to the realm of psychosis. It can occur as an instance of verbal stereotypy in the schizophrenic, who in season and out may declaim an idiosyncratic but otherwise meaningless utterance. 'Here I come, here I stay . . .', 'And the Lord shall prepare a niche in the Rock!' 'Don't touch me.' These are all examples of schizophrenic verbigeration. Then there are the exclamations of despair which may be uttered over and over again by agitated melancholics, 'Oh my God, what shall I do?' or 'Oh God, kill me!' and so on. In demented, too, hypochondriacal preoccupations may cause some such phrase as 'Please can I go to the lavatory, Mummie?' to dominate the conversation, though not to the entire exclusion of other forms of speech.

* From Hemingway's 'For Whom the Bell Tolls,' reproduced by kind permission of the publishers, Messrs. Jonathan Cape.

We come now to the most interesting of all the examples of barrel-organisms, namely the *recurring utterance* sometimes encountered in severe aphasics. The patient is limited in his speech to a solitary word or phrase, which he employs on all occasions, however irrelevant, however incongruous. The word or phrase which over-runs the garden of his speech like a weed, may be a most unexpected one, even quite complicated, so that it bears more the stamp of a curtailed proposition rather than an emotional interjection. Hughlings Jackson, who first described this phenomenon, called them originally 'stock utterances'; later he preferred to speak of them as 'recurring utterances.' He recognized four types:—(1) A fragment of meaningless jargon; (2) a single word; (3) a phrase; and (4) 'yes' or 'no' (or both of these words).

Thus the vocabulary of one of my patients was restricted to the solitary phrase 'on the booze,' which he enunciated in reply to questions as well as spontaneously. By altering the melody of his voice, or by employing gesture he was able to utilize these three words with such success as to make them express his immediate desires or to signify assent, negation or dismissal.

We recall Broca's original patient at the Bicêtre, who could say nothing at all except 'Tan-tan,' by which nickname he was known to all the other patients and doctors.

Other examples of recurring utterance have been recorded in such fragments of jargon as 'Da de da, do de da,' 'Yabby,' 'Me me comittimy pittimy.' Then there are phrases like 'that's mine,' 'list complete,' 'Teacher, teacher, bed pan, teacher,' the rags and tatters of what was once the patient's speech, as Jackson put it. Such aphasic patients cannot say a part only of their recurring utterance. Thus Bazire's patient muttered 'sapon, sapon,' but could not be made to say 'sap' or 'pon' alone. During Baudelaire's last days in the Institute of Saint-Jean and Sainte-Elizabeth, his speech was restricted to the expletive 'Cré nom,' to the horror of the good sisters in attendance who regarded him as possessed by the devil. His biographer (Enid Starkie) has remarked, 'with these two words, he who had so loved conversation, was obliged to express all his feelings and thoughts, joy, sorrow, anger and impatience, and he used to fly into a rage at his inability to make clear his meaning and to answer those who spoke to him.' But his mind was clear. Nadar visited him and got on to the topic of immortality. "'Voyons comment peux-tu croire à Dieu,'" repérai-je. Baudelaire s'écarta de la barre d'appui où nous étions accoudés et me montra le ciel. Devant nous, au dessous de nous, c'était, embrasant toute la vue, cernant d'or et de

feu la silhouette puissante de l'Arc de Triomphe, la pourpre splendide du soleil couchant. "Cré nom ! Oh, cré nom !" protestait-il encore, me rispoitait-il indigné, à grands coups de poing vers le ciel." Nardar goes on to exclaim, "Les deux seuls mots qui puissent sortir des lèvres d'où avaient jailli des plaintes immortelles. Oh, l'horreur de cette fin lamentable, la cruauté effrayante de lui qui a frappé Baudelaire dans le verbe, ce sertisseur de gemmes de rubis, comme il avait frappé Beethove dans l'ouïe et Michel Ange dans la vue."

Jackson suspected that the words which make up a recurring utterance are those associated with the victim's thoughts at the time of the stroke, and represent the phrase which the patient was about to utter before losing consciousness ; that is to say, a sort of 'stillborn proposition.' Gowers, however, believed the words of a recurring utterance are actually the last ones which the patient has spoken before losing consciousness. I think the clinical evidence supports the belief of Gowers rather than Jackson. My patient with the recurring utterance 'on the booze' had been overcome by his apoplexy during a taproom brawl. The patient who kept saying 'list complete' was an accountant who lost consciousness just after making up his books for the half-year. Another patient sustained a head injury in a street fight, his recurring utterance was 'I want protection.' A woman who developed an ictus while riding a donkey found herself unable to say anything except 'Gee-gee.' One of Gowers' patients was taken ill in a cab. On entering the vehicle she had told the cabby to drive her to Mrs. Waters. These were the last words she spoke. Her reiterating phrase was 'Missus.' An attractive young lady of dubious morals, after a cerebral haemorrhage, could say nothing but the revealing words, 'Not tonight, I'm tired.'

In this connection I recall a war-time patient of mine, a sailor who was one of the crew of a landing craft during the Normandy invasion of Tuesday, June 6th, 1944. The troops had been standing by for some days in readiness to attack until the tension was eventually relieved and the signal for zero hour was given. The sailor sustained on the beaches a bullet wound of the skull producing a right hemiplegia and an aphasia with recurring utterance. This took the form of the statement 'Yes, today,' and it is not difficult to imagine the dramatic circumstances under which that particular proposition originally arose.

The phenomenon of recurring utterance reminds us of the more profound problem of the relation between thought and speech. 'Without speech no reason, without reason no speech . . .' We recall this diction around which philosophers

have disputed for centuries. A study of aphasia has gone far to clarify the issue for we know that behind every aphasic speech disorder there exists a special defect of mentation plus a lesser disorder of general intelligence. The latter may be extremely slight and difficult to demonstrate. But what of the aphasics with recurrent utterance ? In a long-standing case we can satisfy ourselves that thought processes are present—to some degree at any rate. Speech, too, is there, but only after a fashion. Speech and thought are linked in a grotesque alliance, so that the plenitude of inner speech finds outlet in one sole form of vocal expression. Awareness or insight into the nature of the defect will develop and efforts at compensation later appear in the correct use of inflections in the fragmentary speech. We are reminded of a musician who is deprived of all instruments save a one-string violin on which he eventually learns to play a tune.

Again following Jackson, we may also refer to the phenomenon of '*occasional utterance*' in aphasics. A speechless patient—or one who is almost speechless—may in certain circumstances be heard to enunciate quite unexpectedly an interjection, a word, or even a sensible phrase. An aphasic patient with recurrent utterance may very occasionally be coaxed to say something outside his ritual. The occasional utterance may in turn be perseverated and so become a recurrent utterance, or it may be incorporated within the expanding vocabulary. A patient who could only say 'Yes, but you know,' once said 'Take care' when the baby fell. A patient of Trousseau's said 'Merci' when a lady picked up his handkerchief. A patient of mine—almost speechless—suddenly when being demonstrated to my students, cried aloud the word 'unilaterality.' Another patient, totally aphasic and in bed after her stroke, saw her daughter fiddle with her jewel case on the dressing table, and called out 'That's mine'; thereafter the phrase 'that's mine' became a recurring utterance. A severely aphasic man was in the habit of chanting to the buxom night nurse 'She's my Lily of . . .' When, eventually the nurse replied 'Laguna' the patient triumphantly cried 'That's it!' an interjection which thenceforward became an established parrot cry. One of the strangest examples, however, is an aphasic patient of Jackson's who unexpectedly demanded, 'What's all this bloody fuss about ?'

At Queen Square we still tell of a patient of Sir William Gowers who was afflicted with the comment 'Tons of it' as his sole item of speech. In an unguarded moment Gowers once asked the patient, 'Tons of what, my poor man ?' and received a monosyllabic reply as unexpected as it was embarrassing.

At this point I would like to quote an unusual case where a speech iteration developed. A child whose early development had been uneventful began, at the age of five, to show mild disturbances in behaviour and in speech. There was no antecedent illness to account for this. Gradually his vocabulary seemed to become more limited and he spoke more infrequently. There was no evidence of any deafness and he seemed to understand fully all that was said to him. He ceased to take interest in picture books, and his childish powers of reading gradually waned. After a period of some months of almost complete mutism, he became vocal again. But now, at the age of eight, his speech was restricted to the meaningless phrase 'Teezha,' an utterance which he repeated over and over again, sometimes excitedly, sometimes with calm deliberation. To all questions he would reply 'teezha,' the phrase apparently serving both as 'yes' and as 'no.' He would approach his parents or nurse with this word 'teezha,' obviously by the intonation of his voice, making a request. It was clear from listening to him in these circumstances that 'teezha' had for him most of the properties of speech, both propositional and interjectional. On the other hand, when he was occupied with his toys, or in exciting games with other children, he could be heard to chatter aloud 'Teezha, teezha, teezha' in a manner reminiscent of the babbling of the contented infant or the deaf mute. At these times the patient was obviously using these words as a form of play, exercising the so-called 'ludic function' of speech; to employ the terminology of Ombredane.

The pathological nature of this patient's syndrome was never determined. His iteration 'teezha' is an important one in that it combines the role of an aphasic's recurrent utterance with the added use of truncated speech as a pleasurable exercise.

Let us finally say a little about 'reduplications' in speech. These are linguistic phenomena which bear a remote relationship to speech iterations in that both consist in repetitions arising out of a background of a restricted vocabulary. Reduplications in speech are encountered in at least four circumstances:—

1. In the speech of primitive peoples and particularly the Hottentot and Polynesian tongues. need not give examples, but will only mention that many of these reduplicated words are onomatopoeic in their nature.

2. In the speech of young children. In this country, for example, the common term in baby talk for horse is *gee-gee*, for train *puff-puff*. Once again we may note that some of these expressions are echo words while others are based upon interjections (*gee-gee*). Some would like to detect in the reduplications of the children's speech an atavistic return to the kind of language in primitive communities. Such an idea is far-fetched, and we would agree rather with Jespersen in regarding the child's reduplications as a form of verbal play, and he refers to the pleasure always felt in repeating the same muscular act until one is tired. He also reminds us that in the act of laughter we are repeating the same vowel sound preceded by an aspirate.

3. In some of the makeshift languages used as *lingua franca* between whites and coloured races, reduplications may loom large. We meet them, for example, in the *Bêche-de-mer* of the South Sea Islands, in the Patois créole of Mauritius, in the Chinook jargon of North America, but best of all in the pidgin-English of China. In the latter named there occur a very large number of reduplications, for example, *chin-chin* (salutations), *fu-fu* (ordure), *chop-chop* (quickly), *man-man* (slowly), *chow-chow* (to eat) *sing-song* (a poem).

4. Lastly we meet at times strange reduplications in the language—if you can call it that—employed by man while exhorting animals. This forms a fascinating chapter in philology, though its connections with neurology are not very clear. Easily the best example of reduplication in man's calls to his beasts can be traced in the traditional French hunting cries. To encourage the hound to work the huntsman cries, '*Ha hallé, hallé, hallé!*' or '*Hau, hau, hau tahaut!*' or '*Ha belle ment la ila, la ila, haut valet,*' etc. An 18th century treatise on the subject solemnly adds a list of exhortations for English dogs, 'for there are very many English hounds in France and it is difficult to get them to work when you speak to them in an unknown tongue!'