

APHASIA AND KINDRED DISORDERS OF SPEECH

PART V REPORTS OF CLINICAL CASES

No. 1

A case of extremely severe Aphasia, due to an extensive gun-shot injury of the left half of the head. The missile entered in the fronto-temporal and made its exit in the temporo-parietal region; at this point there was a small hernia cerebri. These wounds healed completely in fifteen weeks.

There was profound right hemiplegia, in which face and tongue participated; the upper extremity was flaccid, the lower hypertonic. The visual fields were not affected.

At first he was completely speechless except for "yes" and "no," but he recovered power rapidly and it then became obvious that the defects of symbolic formulation and expression were mainly of the Verbal type. Articulation was extremely bad and he could not repeat even single words with certainty. He failed to understand what was said to him and executed oral commands with difficulty. He did not comprehend exactly what he read to himself and carried out printed commands slowly and incorrectly. At first he could write nothing but his surname and was unable to copy print in cursive handwriting; this power of copying returned, however, long before he was able to write spontaneously or to dictation.

Recovery progressed with great rapidity and thirty weeks after he was wounded considerable power had returned to the right leg, but the hand was entirely useless; the tongue still deviated on protrusion. He had now become a straightforward example of Verbal Aphasia. He talked slowly and with obvious difficulty and, when repeating anything said to him, his articulation was better than with spontaneous speech. He understood all that was said and executed even complex oral commands correctly. Although he succeeded in carrying out printed orders with the exception of the hand, eye and ear tests, he still failed to comprehend exactly what he read to himself owing to defects of internal verbalisation. The right hand was powerless and he employed the left for writing; not only was the act of writing difficult, but the words were badly spelt. To dictation the faults were of the same character though less gross. He could, however, copy print perfectly in cursive script, evidence that the defect was intellectual rather than mechanical. He was unable to say the alphabet spontaneously and had great difficulty in writing the letters in due sequence. In

spite of his University education, he was puzzled by simple arithmetical problems. Orientation was in no way affected and he drew from memory a perfect ground-plan of his ward at the hospital, in spite of its unusual and irregular form. He could play simple card games, but not bridge; puzzles he enjoyed and solved with ease.

Lieutenant A. C. A., aged 22, was wounded on October 18th, 1915, by a fragment of shrapnel, whilst sitting in a trench. No notes came through to England, except a temperature chart; but from this it was evident that an operation had been performed on the 21st, whilst he was still unconscious and that he subsequently suffered with irregular fever ranging between 98° and 101°–103° F. (38·4°–39·4° C.).

On November 10th, 1915, he was evacuated to England, where he came under my care at the Empire Hospital.

His injuries were confined to the left half of the head; they consisted of two granulating areas and a semicircular surgical incision, which had healed (Fig. 15). The anterior wound, representing the entry of the missile in the fronto-temporal region, was roughly triangular in shape, obliquely vertical in position and 4 cm. from the middle line. It was about 4·5 cm. in length and laid bare the superficial coverings of the brain.

Further back was the more important wound of exit, also roughly triangular in form with a herniating surface, from which cultures of streptococci and staphylococci were obtained. This area was 8 cm. in length horizontally and lay 5 cm. from the middle line of the scalp. It extended from a point 14 cm. to one 22 cm. along the nasion-inion line. The healed surgical flap lay between this portion of the wound and the centre of the scalp, with a descending limb running downwards in the direction of the ear.

Both wounds healed with unusual rapidity; by January 2nd, 1916, the anterior had closed completely, whilst the posterior was reduced to a deep pit with shelving edges leading down to a clean granulating area 2 cm. in length and not more than 0·75 cm. in breadth. By the end of the month even this portion had firmly healed.

On admission (Nov. 14th, 1915) his mental state was excellent and his temperature fell to normal in the first week. He was completely speechless except for "yes" and "no," which he could use in their proper sense, provided he was allowed to correct himself if he made a mistake; but he could not repeat them, when asked to do so.

He was unable to read, although he could point to the word on the list beside him, which expressed the thing he desired. If he was shown an object, such as an acid drop, he could not find the name on the paper; but whenever he wanted an acid drop he would ring his bell for the nurse and point correctly to the name. I also tested his power of asking in this way for a pear or an orange and repeatedly watched him employ this method for obtaining the bottle into which he passed urine.

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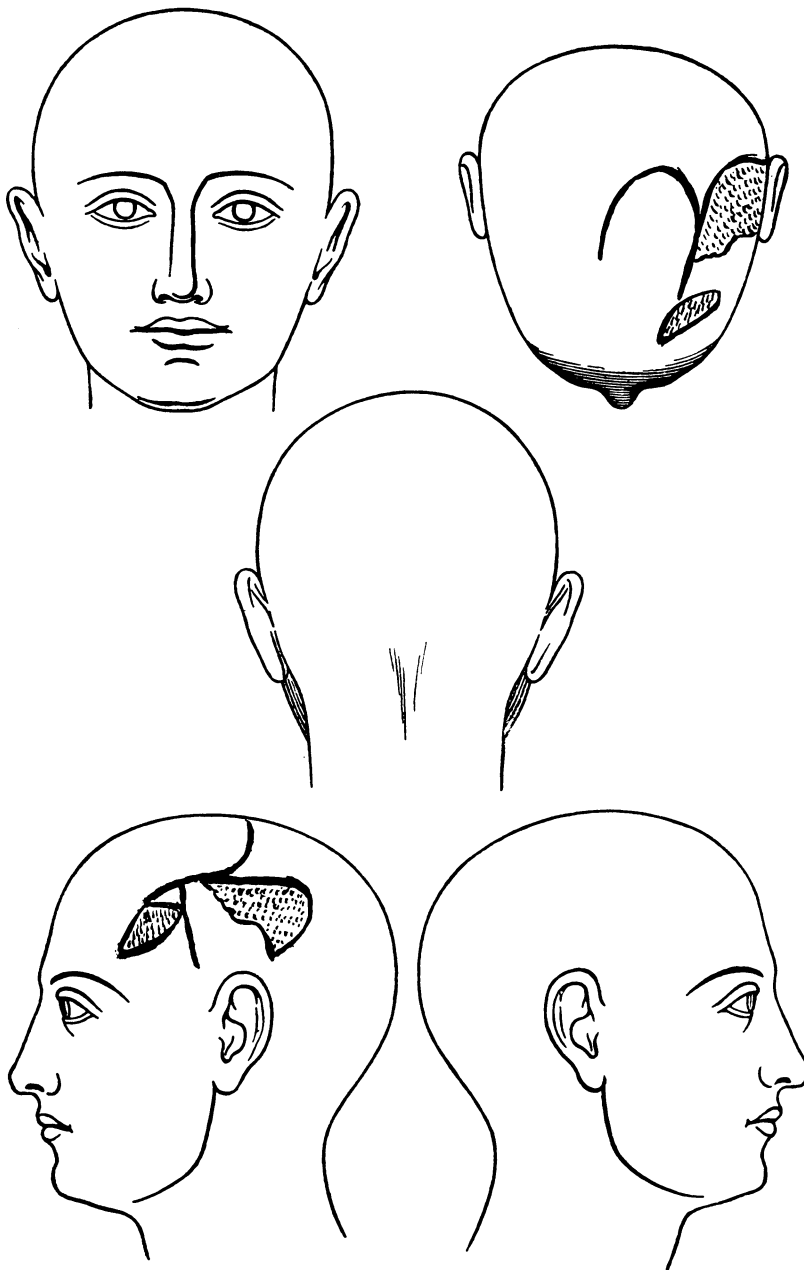


Fig. 15. To show the wounds of entry and of exit in No. 1.

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He was a strongly right-handed man, who had been a brilliant cricketer at the University and had always batted and thrown with the right hand. He rapidly acquired the habit of doing everything with the left, even to filling his pipe. There was no sign of apraxia at any time.

Physical Examination.

He suffered from no headache, vomiting, convulsions or other seizures.

The visual fields were not restricted, there was no hemianopsia and the discs were normal. Hearing, smell and taste were unaffected, as far as it was possible to test them.

The pupils reacted well; the eyes moved perfectly in all directions and there was no nystagmus. Movements of the right half of the jaw and of the lower part of the face on the same side were defective. The tongue deviated grossly to the right on protrusion.

All the deep reflexes were exaggerated on the right half of the body; the abdominal was absent and the plantar gave a characteristic upward response. The reflexes from the left half of the body, both deep and superficial, were normal.

All power was lost in the right upper limb, including the shoulder, and in the lower extremity to the knee; movements of the right thigh were exceedingly feeble. The whole arm was flaccid, whilst the right foot was tonically contracted in the plantar-extended position. Both the right upper extremity and the leg up to the knee were somewhat wasted.

Movement returned rapidly to the right leg, and, by the middle of January, 1916, he could dorsiflex and plantar-extend the foot at the ankle. At the same time power returned to the right shoulder and the arm became spastic. Both limbs showed gross loss of coordination, especially when the eyes were closed.

The sphincters were never affected and he was extremely careful and cleanly in his habits throughout.

CONDITION BETWEEN DECEMBER 5TH, 1915, AND JANUARY 28TH, 1916 (*seven to fourteen weeks after he was wounded*).

Symbolic Formulation and Expression.

Articulated speech. He rapidly improved after admission and recovered the power to use the following words and phrases appropriately: "I don't know," "please," "good-night," "just so," "to tell you the truth," "I want something," "dressing has moved," "breakfast," "lunch," "tea," "dinner," "pine apple," and his address in London and in Twickenham.

Told to repeat these words after me he succeeded in saying, "I don't know," "dressing is moved" (instead of "has moved"), "tea," "breakfast" and "Cadogan

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Gardens," a part of his London address. But he was unable to repeat any of the others including his own name.

Asked to give his name he laughed and made no sound; but when I said, "Is your name A. C. A.?" he at once replied, "yes." Then he added, "Twickenham," followed by the name of the road he had not been able to repeat.

When I suggested he should count he struggled vainly to do so, but emitted no sound. I then said, "One, two, three," and he still made no response. Ten minutes later, whilst I was preparing to test his power of naming common objects, he suddenly burst out, "One, two, three, four, five, six"; then he went back to "one, two," and after a pause counted rapidly, "One, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, thirteen, twenty-one, twenty-two..."

Reading. From the first it was obvious that he understood the significance of some printed words, although he could not read a book to himself with understanding. He chose the right object to printed commands in nine out of sixteen attempts and rapidly acquired the power to carry out more complicated actions.

With the hand, eye and ear tests he had some difficulty in reading the order aloud correctly, although the movements were executed faultlessly. From pictures, he read slowly but accurately.

Writing. In the earlier stages he was unable to write anything except his surname and a scrawl, which somewhat resembled one of his Christian names. At first he could not copy; but the power of transcribing print into cursive handwriting returned long before he was able to write spontaneously or to dictation. When he began to write again, he could do so better from pictures than if the words were dictated by me.

Serial Tests.

His condition changed so rapidly for the better during the period of nearly eight weeks, when he was subjected to more intensive examination, that the serial tests have been arranged according to their order in time, and the date has been added of the day on which they were carried out.

(1) *Naming and recognition of common objects.* (December 5th, 1915.)

He was extremely quick and certain in the choice of objects he had seen or held in his left hand out of sight. As the test proceeded he scarcely needed to see or touch for a moment the scissors, the match-box, the penny or the key, before he thrust out his left hand in the direction of the duplicate on the table in front of him. He remembered the order in which they lay and would point to their position even before the screen was removed.

He was extremely slow in selecting the right object from the set on the table in response to its name, whether said by me or printed on a card. He frequently

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seemed to forget the order in which they lay and moved his hand up and down the row as if testing whether they corresponded to the spoken or printed word. In both series, however, he succeeded in choosing more than one half correctly.

But he was completely unable to articulate, to write or to copy the name of any of these common objects. He remained silent and did not even attempt to utter any approximate sounds. The scrawled marks he made on the paper when writing, bore no obvious relation to the word he was trying to reproduce.

In order to discover how far his difficulties were due to lack of power to evoke and retain the symbols he required, I carried out the following experiments. Shown one of a set of common objects, he never failed to point out the duplicate amongst those on the table; this he did with remarkable quickness and certainty. But when two objects were exhibited at the same time, he was unable to choose both correctly except on one occasion only; he usually selected one of them and failed to make a second choice. For, when the test was carried out in this manner, it was no longer a simple act of matching; he was compelled to retain two symbols in his memory and to correlate them with two objects on the table.

<i>Shown together.</i>	<i>Objects indicated.</i>
Penny	Correct
Match-box	"No." No choice
Knife	No choice
Key	Correct
Pencil	Correct
Scissors	No choice
Match-box	Correct
Key	Correct
Scissors	Correct. Said "Yes and..?"
Penny	No choice
Knife	No choice
Pencil	No choice
Scissors	Correct
Match-box	Chose pencil
Pencil	Correct. Said "Yes and..?"
Key	No choice
Penny	No choice
Knife	No choice

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Table 1.

	Pointing to object shown	Oral commands	Printed commands	Duplicate placed in L. hand out of sight	Naming an object indicated	Writing name of object indicated	Copying from print
Penny	Correct	Correct	Correct	Correct	Impossible	Impossible	Impossible
Match box	"	"	"	"	"	"	"
Knife	"	"	"	"	"	"	"
Key	"	"	"	"	"	"	"
Pencil	"	"	Knife	"	"	"	"
Scissors	"	"No"; then correct	Match box	"	"	"	"
Match box	"	Correct	Correct	"	"	"	"
Key	"	"	"	"	"	"	"
Scissors	"	Correct; very slow	Match box	"	"	"	"
Penny	"	Correct	Correct	"	"	"	"
Knife	"	No response	Scissors	"	"	"	"
Pencil	"	Key	Knife; then key	"	"	"	"
Scissors	"	No response	Correct	"	"	"	"
Match box	"	Correct	"	"	"	"	"
Pencil	"	Key	Penny	"	"	"	"
Key	"	Correct	No response	"	"	"	"
Penny	"	"	Correct	"	"	"	"
Knife	"	"	No response	"	"	"	"

(2) *The hand, eye and ear tests.* (December 12th, 1915.)

Owing to the complete paralysis of the right arm this test was of necessity somewhat simplified; throughout he used his left hand only to touch the right or left eye or ear. But in spite of the fact that the task was easier, it was obvious from the way he failed to carry out movements reflected in the mirror that there was some defect of general understanding. This is not to be wondered at considering the severity of the lesion.

Table 2.

	Imitation of movements made by the observer	Imitation of movements reflected in a mirror	Pictorial commands	Pictorial commands reflected in a mirror	Printed commands read aloud and executed		Oral commands
					He said	Movements executed	
L. hand to L. ear	No response. Then "Well yes"; correct	Reversed	Correct	Reversed	Correctly	None	No response
L. hand to R. eye	Correct	"	"	"	"	"	"
L. hand to R. ear	No response	Correct	"	Correct	"L. hand to R. cheek"	"	Reversed
L. hand to L. eye	L. hand to tip of nose	Reversed	Reversed	"	"L. cheek to L. eye"	"	R. ear
L. hand to R. ear	Correct	"	Correct	"	Correctly	"	No response
L. hand to L. eye	"	Correct	Correct; slow	"	"	"	Reversed
L. hand to R. eye	"	"	Correct	"	"L. hand to R. ear"	"	"
L. hand to L. ear	"	Reversed	"	"	"R. hand to R. ear"	"	No response
L. hand to R. ear	No response	"	R. eye	R. eye	"L. hand to R. eye; no, ear"	"	"
L. hand to R. eye	Correct	Correct	Correct	Correct	Correctly	"	R. ear
L. hand to L. eye	L. hand to R. eye; then to tip of nose	"	"	"	"L. hand to R. eye"	"	No response
L. hand to L. ear	Correct	"	"	"	Correctly	"	L. cheek

(3) *The clock tests.* (January 13th, 1916.)

By the middle of January his condition had improved still further and his general intelligence was extraordinarily good. He set the clock perfectly not only in imitation, but also to both oral and printed commands. He was not satisfied to place the short hand exactly opposite the hour, but selected some point between the two figures on the clock face proportionate to the position of the minute hand.

He had recovered sufficient words to tell the time; but he was not only extremely slow in utterance, but confused "past" and "to" and stumbled over two of the numbers correcting himself each time.

Table 3.

	Direct imitation	Oral commands	Printed commands	Telling the time	Writing down the time shown on a clock face	Copying from print
Half-past 2	Correct	Correct	Correct	"Half. .past. .two"	Impossible	Correct
20 minutes past 9	"	"	"	"Twenty. .mints. .to. .nine"	"	"
5 minutes to 2	"	"	"	"Five. .mints. .to. .two"	"	"
5 minutes past 8	"	"	"	"Five. .mints. .past. .eight"	"	"
Half-past 1	"	"	"	"Half past. .one"	"	"
20 minutes to 4	"	"	"	"Twenty. .to. .four"	"	"
10 minutes past 7	"	"	"	"Five. .ten. .mints. .to. .five. .seven"	"	"
20 minutes to 6	"	"	"	"Twenty mints. .to. .five. .six"	"	"
10 minutes to 1	"	"	"	"Ten. .mints. .to. .one"	"	"
A quarter to 9	"	"	"	"Fifteen mints. .to. .nine"	"	"

Although he was unable to write down the time shown on the clock, he could copy the printed cards in cursive handwriting.

He showed a strong sense of error and was not satisfied until the time was rightly given, especially when copying.

Asked to tell the time aloud and then to write it down, he failed not only in writing, but also in speech. Far from helping him, the fact that he knew he had to write confused him and rendered verbalisation impossible.

(4) *The man, cat and dog tests.* (January 26th, 1916.)

He read aloud from print and from pictures all the combinations of this test very slowly, but without a mistake.

Not only could he copy the printed words, but he was now able to write from pictures and to dictation; in both these acts the improvement due to practice was visible.

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He repeated the words said by me accurately and his enunciation was much more rapid than when he uttered them spontaneously.

Throughout all the tests there was no tendency to reverse the order of the nouns or to substitute wrong names; his difficulty was in pronouncing the words or in writing them correctly.

Table 4.

	Reading aloud	Reading from pictures	Writing to dictation	Writing from pictures	Copying from print	Repetition
The cat and the man	Correct but very slow	Correct but very slow	A cat and the ma	the the	Correct	"Cat and the man"
The man and the dog	"	"	The ma and the dog	man dog	"	"The dog and the cat"
The cat and the dog	"	"	Correct	Correct	"	Correct
The dog and the cat	"	"	The dog and the	"	"	"Dog and cat"
The man and the cat	"	"	The mat	"	"	"The man. . and the cat"
The dog and the man	"	"	The dog and the ma	"	"	"Dog and the. . man"
The cat and the man	"	"	The cat and the	"	"	"The. . cat and the man"
The man and the dog	"	"	The ma and the dog	"	"	"The. . man and the dog"
The cat and the dog	"	"	Correct	"	"	Correct
The dog and the cat	"	"	"	"	"	"
The man and the cat	"	"	The m and the cat	"	"	"The man. . and the. . cat"
The dog and the man	"	"	The dog and the ma	"	"	Correct

(5) *Naming and recognition of colours.* (January 28th, 1916.)

Here again he was not only able to match a colour he had seen, but could carry out correctly oral and printed commands.

He found great difficulty in evoking words to designate the colours and, although he never used wrong names, failed six times in sixteen attempts. At the termination of this sitting I carried out another naming series and his power of finding the right word had obviously improved owing to the many occasions on which he had heard or read the colour-names in the course of these tests.

Table 5.

	Pointing to colour shown	Naming colour shown	Oral commands	Printed commands	Printed name read aloud and colour chosen		Writing name of colour shown	Naming colour shown [2nd series]
					He said	He chose		
Blue	Correct	No response	Correct	Correct	Correctly	Rapidly and correctly	Blue	Correct
Yellow	"	"	"	"	Very slow; correctly	"	Ye	No response
Green	"	Correct	"	"	Slow; correctly	"	Orog	Correct
Orange	"	"Red"	"	"	Correctly	"	ret	"
Red	"	"Red, I suppose"	"	"	"	"	Bla	"
Black	"	Correct	"	"	Slow; correctly	"	vi	"
Violet	"	"Heliotrope"	"	"	"Vi-let"	"	wo	"
White	"	Correct	"	"	Correctly	"	rd	"
Red	"	No response	"	"	"	"	y	No response
Green	"	Very slow; correct	"	"	"	"	whi	Very slow; correct
White	"	Correct	"	"	"	"	oro	Correct
Orange	"	No response	"	"	"	"	vi	"Heliotrope"
Violet	"	"Heliotrope; red"	"	"	Slow; "vi-let"	"	Illegible scrawl	Correct
Yellow	"	No response	"	"	Slow; correctly	"	ble	"
Black	"	Very slow; correct	"	"	Slow; correctly	"	blu	"
Blue	"	No response	"	"	Correctly	"		"

When he was permitted to read the printed card aloud, he showed the same verbal inability; and yet the choice of the colour was rapid and correct. He thrust out his hand in the right direction long before he could find the name. The response to printed commands was immediate and did not come through the uttered word.

He wrote the names of the colours extremely badly; in fact he completed the word he was writing on one occasion only. But the fragmentary scrawls on the paper indicated that he knew the name, although he was unable to reproduce it at will. Thus “bla” was black, “oro” orange and “vi” violet.

CONDITION FROM MAY 21ST TO MAY 27TH, 1916 (*thirty to thirty-one weeks after he was wounded*).

Considerable power had returned to the right leg and he walked with a characteristically hemiplegic gait. He was able to dorsiflex and plantar-extend the right foot, though feebly compared with the normal limb. The hand was entirely useless, but some movement was possible at both shoulder and elbow. The whole of the right upper extremity was strongly hypertonic.

Some weakness of the lower part of the face was still present on the right side, and the tongue deviated somewhat on protrusion.

Otherwise his physical condition was not materially changed.

Before he joined the army he had been an undergraduate at one of the older Universities, reading for a classical degree, and he had now regained his old intellectual vigour. He was bright, cheerful and in no way cast down by his disabilities. He maintained an amused attitude towards the tests, as if he were playing a game; he knew when he was wrong and determined to find the right answer. Sometimes he was able to rectify his mistakes; but not infrequently he failed to do so in spite of repeated attempts, although he would never accept a false solution as correct. His memory was now excellent and his temper equable.

He had become extremely clever with his left hand; he wrote with rapidity and ease, buttoned his clothes, filled his pipe and carried out many other complex acts with one hand alone.

Articulated speech. He talked slowly and with obvious difficulty, but the pauses were less frequent, the words were emitted in larger groups and were more perfectly pronounced. Asked what he had been doing at our Convalescent Hospital he said, “Walking a little... talking difficult a bit... five or six times in the car... that’s all I think.” Q. “What games have you played?” A. “Picquet... and whist... but it was not much good... About two months ago...” Q. “Have you played bridge?” A. “Oh! no... not bridge... gave up... patience... two months ago.” By this he intended to imply that he had begun to be able to play patience, a simple single-handed card game, two months before.

Understanding of spoken words. He had regained the capacity to comprehend