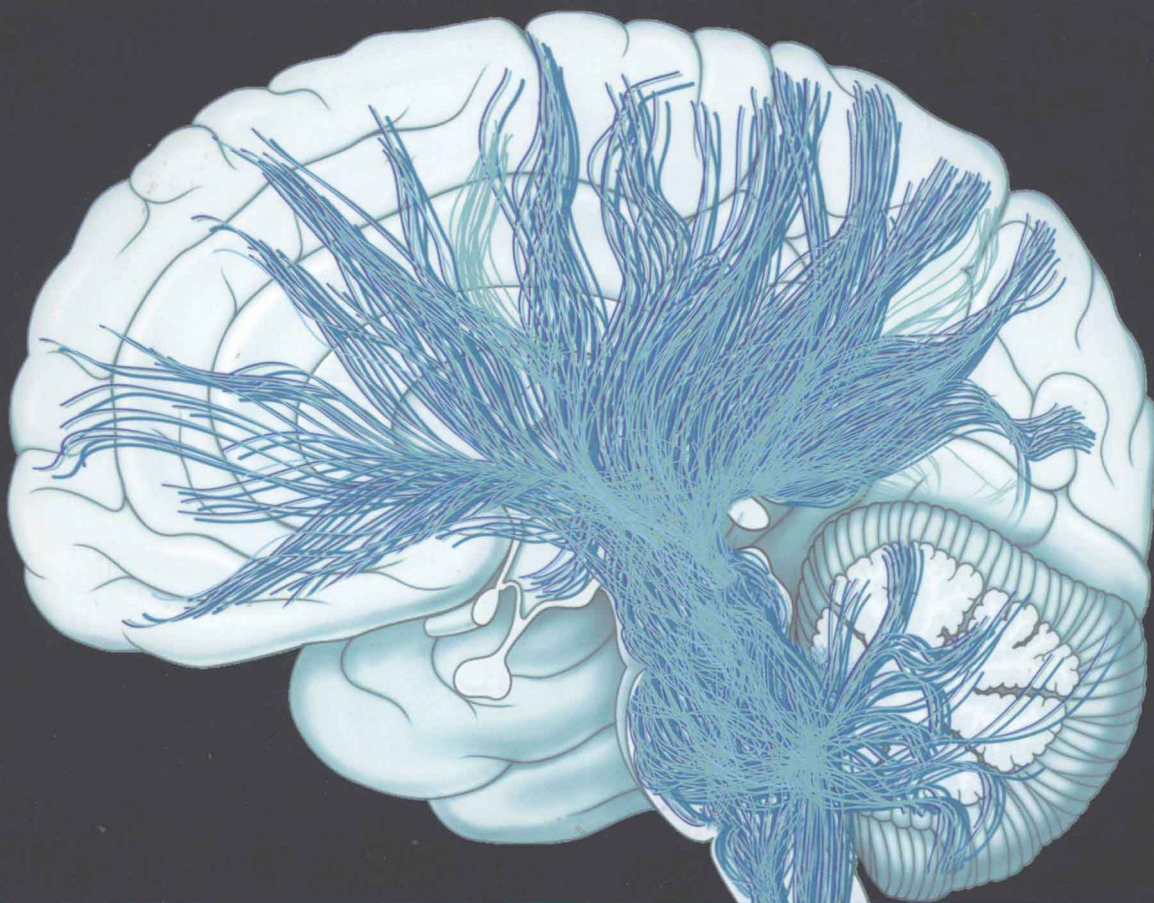


FIFTH EDITION

NEUROLOGY AND NEUROSURGERY ILLUSTRATED

KENNETH W LINDSAY • IAN BONE • GERAINT FULLER



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NEUROLOGY AND NEUROSURGERY ILLUSTRATED

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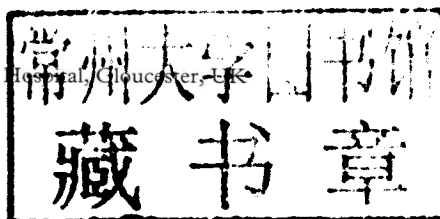
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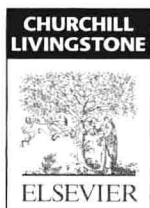
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FIFTH EDITION



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FOREWORD

Students often tend to regard diseases of the nervous system as a difficult subject. This book has surely dispelled that traditional belief, as testified by the success of the four previous editions, spanning almost a quarter of a century. The authors have managed to make the nervous system and its disorders accessible in several ways. First and foremost, they have used every possible opportunity to include illustrations, especially simple line drawings, whenever the subject allowed it. In this way the structure and functions of the nervous system, baffling at first sight, are lucidly explained, part by part. Thanks to their didactic guidance, the student will eventually find the matter less complicated than the street map of inner London. Secondly, the text has been restricted to bare essentials. Students do not have to wade through a wilderness of words in order to grasp the key elements they need to know. Finally, between the traditional signposts of physical examination, technical investigations and traditional disease categories, the authors have made ample room for a didactic discussion of the variety of symptoms that bring patients to the neurologist or neurosurgeon - from loss of smell to problems of memory. After all, the patient is the point of departure in medicine. Like a convenient travel guide that leads the tourist to memorable sights, the book will teach the student – and remind the physician - how to understand, recognize and treat disorders of the brain, spinal cord, nerves and muscle. In this fifth edition the authors have taken account of new developments, while preserving the admirable clarity and simplicity that make it stand out from other textbooks.

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PREFACE

It has been 24 years since the first edition of *Neurology and Neurosurgery Illustrated* was published. On writing each new edition, we are always surprised at the number of changes required. For this edition there is an additional change. Ian Bone has retired from clinical practice and Geraint Fuller has joined to edit and update this edition. As in all previous editions there have been updates in many areas.

With the increasing trend to sub-specialise within clinical neuroscience, we have become increasingly dependent on colleagues for advice. The following have provided many valuable suggestions – Laurence Dunn, Patricia Littlechild and Jerome St George (neurosurgery), Colin Smith (neuropathology), Alison Wagstaff (neuroanaesthetics), Donald Hadley (neuroradiology) and Roy Rampling (oncology). We would like to offer sincere thanks to all. Finally we are indebted to Ailsa Laing of Elsevier for her patience and gentle encouragement.

2010

K.W. Lindsay
I. Bone
G. Fuller

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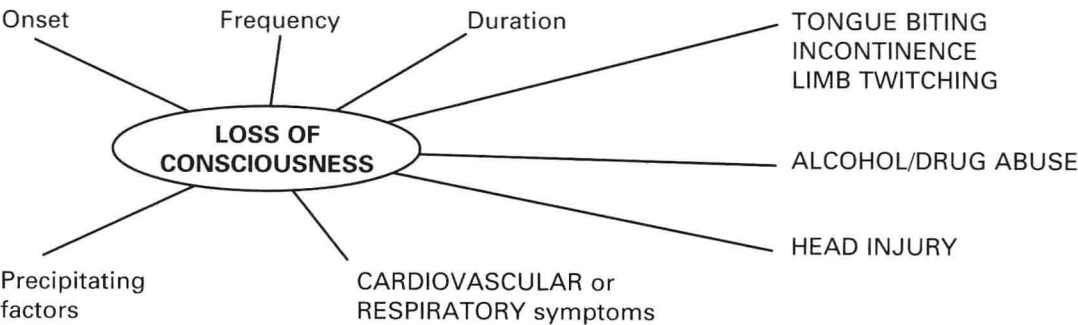
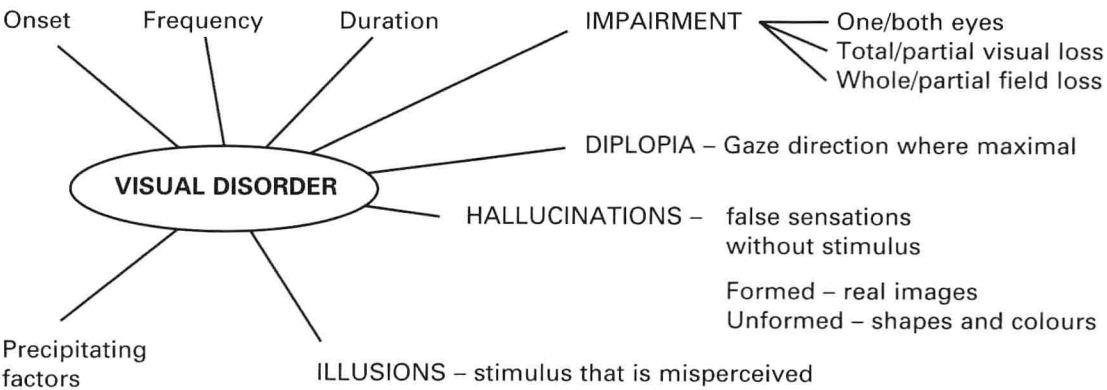
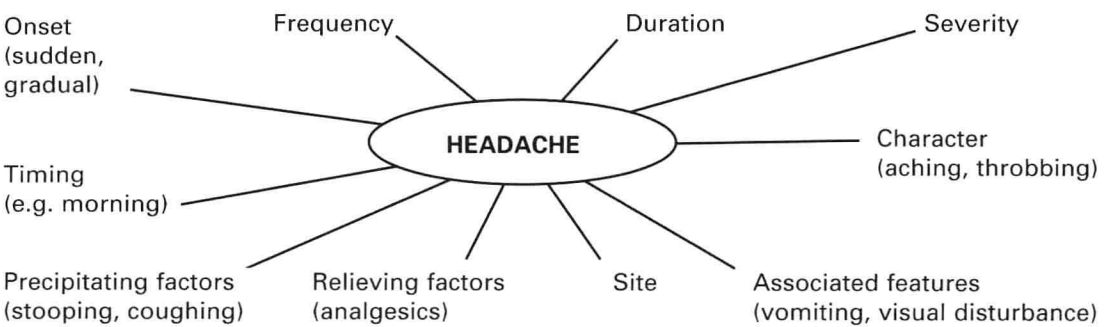
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GENERAL APPROACH TO HISTORY AND EXAMINATION

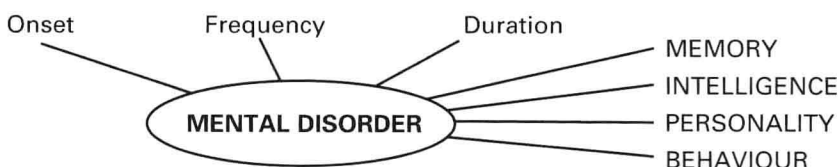
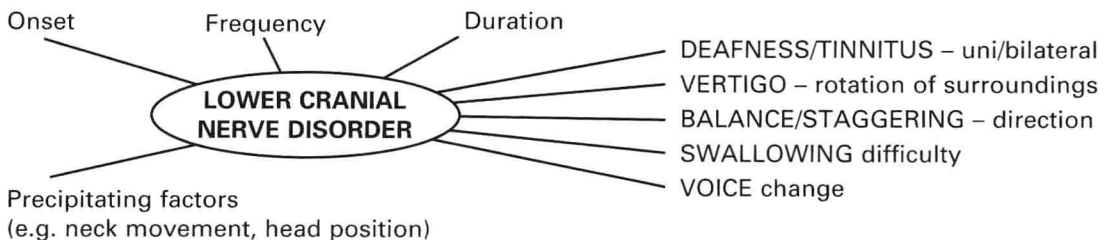
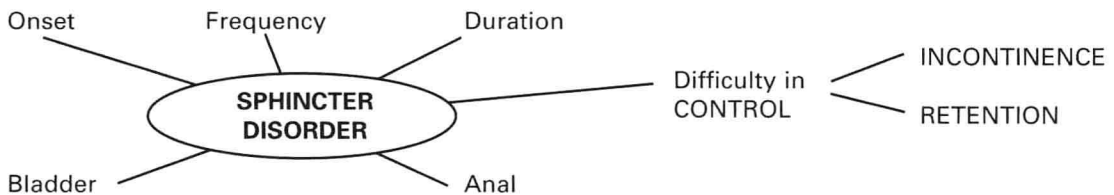
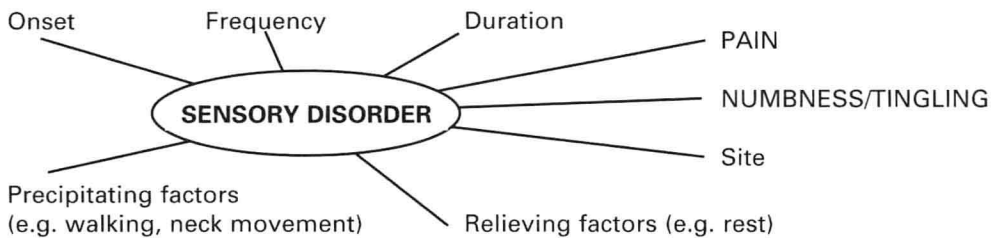
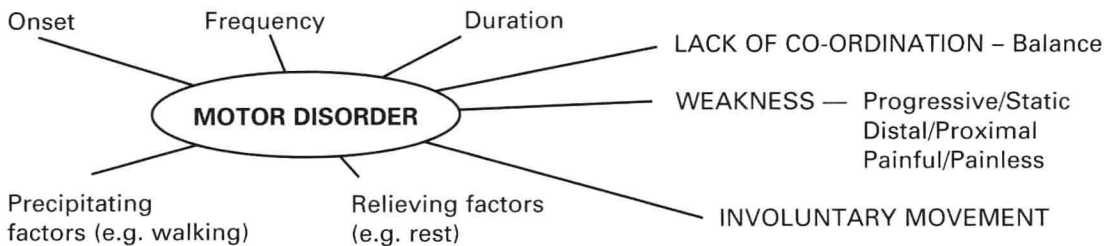
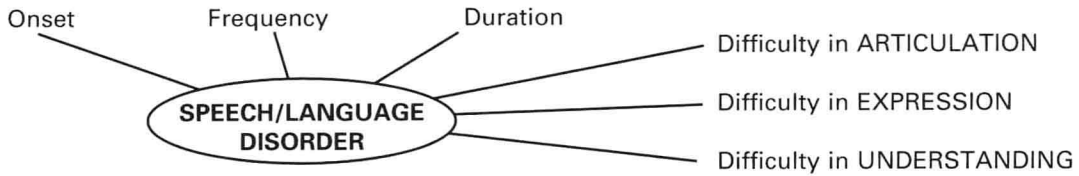
NERVOUS SYSTEM – HISTORY

An accurate description of the patient’s neurological symptoms is an important aid in establishing the diagnosis; but this must be taken in conjunction with information from other systems, previous medical history, family and social history and current medication. Often the patient’s history requires confirmation from a relative or friend.

The following outline indicates the relevant information to obtain for each symptom, although some may require further clarification.



NERVOUS SYSTEM – HISTORY

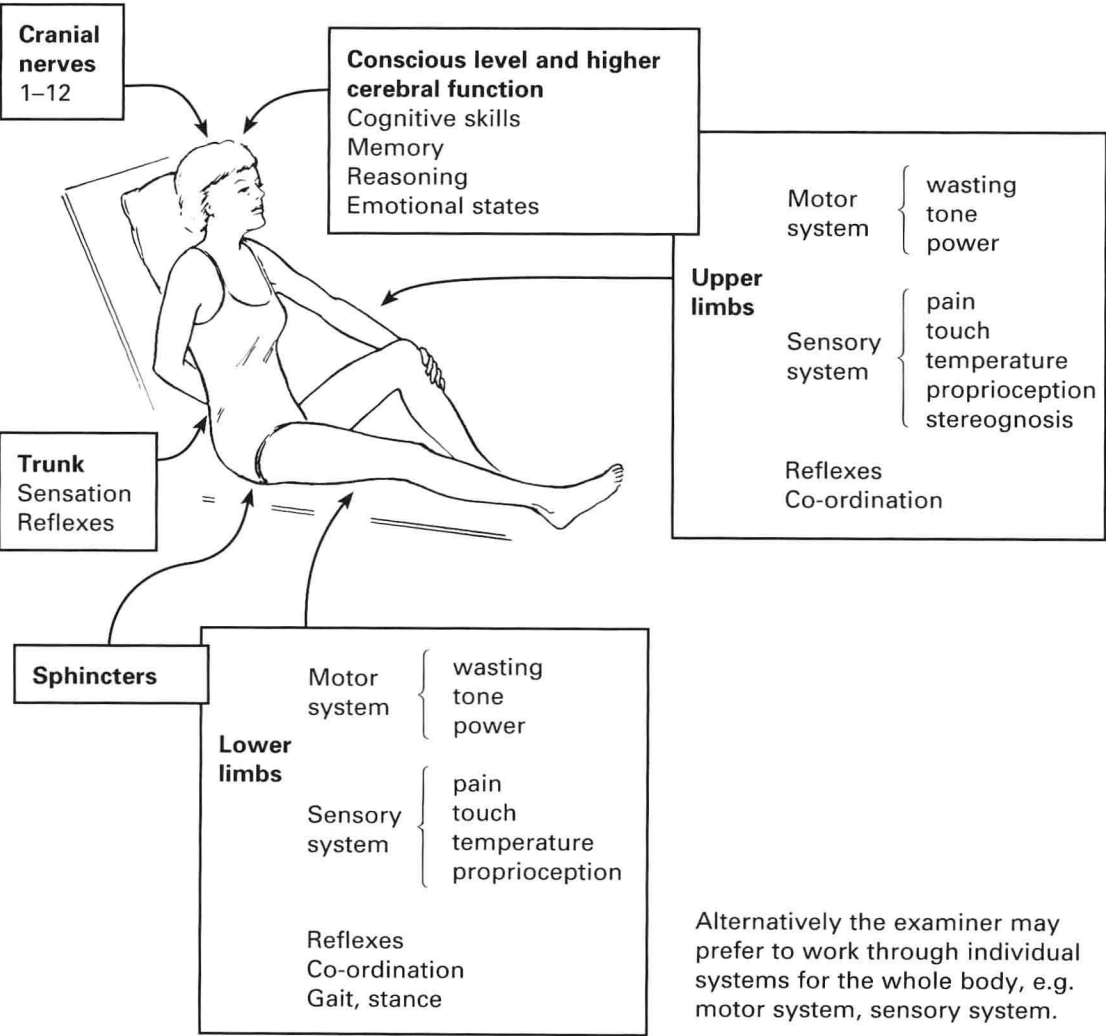


NERVOUS SYSTEM – EXAMINATION

Neurological disease may produce systemic signs and systemic disease may affect the nervous system. A complete general examination must therefore accompany that of the central nervous system. In particular, note the following

Temperature	Evidence of weight loss	Septic source, e.g. teeth, ears,
Blood pressure	Breast lumps	Skin marks, e.g. rashes
Neck stiffness	Lymphadenopathy	café-au-lait spots
Pulse irregularity	Hepatic and splenic enlargement	angiomata
Carotid bruit	Prostatic irregularity	Anterior fontanelle } in baby
Cardiac murmurs		Head circumference }
Cyanosis/respiratory insufficiency		

CNS examination is described systematically from the head downwards and includes:



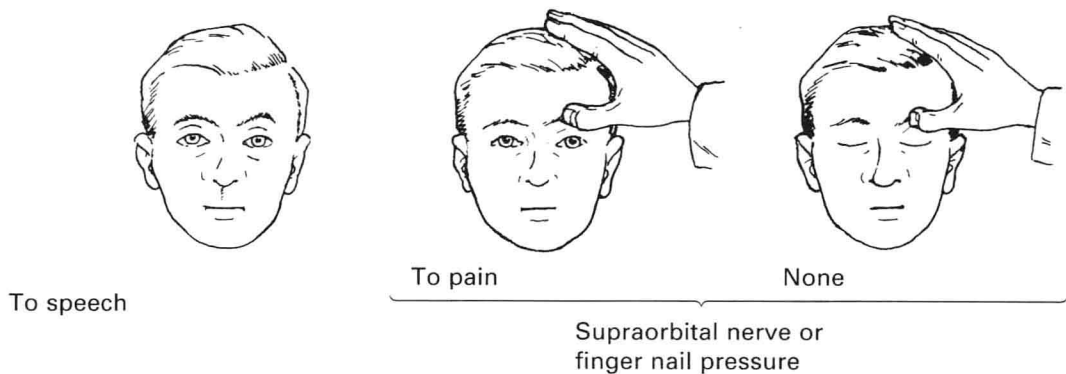
EXAMINATION – CONSCIOUS LEVEL ASSESSMENT

A wide variety of systemic and intracranial problems produce depression of conscious level. Accurate assessment and recording are essential to determine deterioration or improvement in a patient's condition. In 1974 Teasdale and Jennett, in Glasgow, developed a system for conscious level assessment. They discarded vague terms such as stupor, semicoma and deep coma, and described conscious level in terms of EYE opening, VERBAL response and MOTOR response.

The Glasgow coma scale is now used widely throughout the world. Results are reproducible irrespective of the status of the observer and can be carried out just as reliably by paramedics as by clinicians

EYE OPENING – 4 categories

Spontaneous



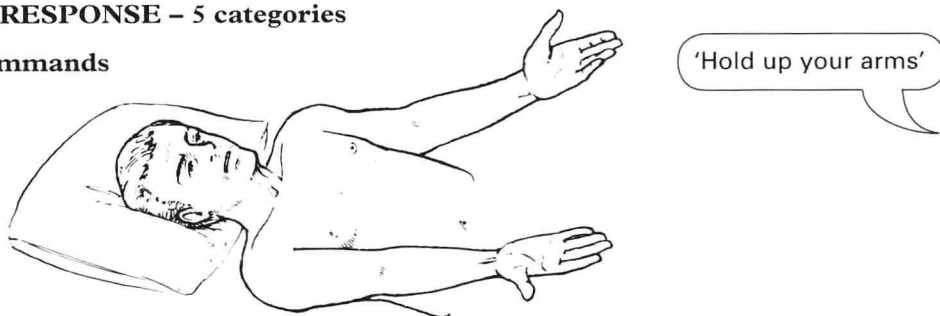
VERBAL RESPONSE – 5 categories

- Orientated* – Knows place, e.g. Southern General Hospital and time, e.g. day, month and year
- Confused* – Talking in sentences but disorientated in time and place
- Words* – Utters occasional words rather than sentences
- Sounds* – Groans or grunts, but no words
- None*

EXAMINATION – CONSCIOUS LEVEL ASSESSMENT

MOTOR RESPONSE – 5 categories

Obeys commands



Localising to pain

Apply a painful stimulus to the supraorbital nerve, e.g. rub thumb nail in the supraorbital groove, increasing pressure until a response is obtained. If the patient responds by bringing the hand up beyond the chin = 'localising to pain'. (Pressure to nail beds or sternum at this stage may not differentiate 'localising' from 'flexing'.)

Pain (Supraorbital pressure)



Flexing to pain

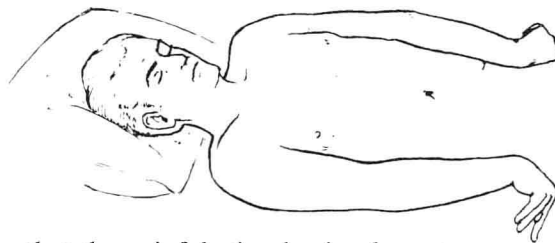


Pain (Nailbed pressure)

If the patient does not localise to supraorbital pressure, apply pressure with a pen or hard object to the nail bed. Record elbow flexion as 'flexing to pain'. Spastic wrist flexion may or may not accompany this response.

Extending to pain

If in response to the same stimulus elbow extension occurs, record as 'extending to pain'. This is always accompanied by spastic flexion of the wrist.



None

Before recording a patient at this level, ensure that the painful stimulus is adequate.

During examination the motor response may vary. Supraorbital pain may produce an extension response, whereas fingernail pressure produces flexion. Alternatively one arm may localise to pain; the other may flex. When this occurs record the best response during the period of examination (this correlates best with final outcome). For the purpose of conscious level assessment use only the arm response. Leg response to pain gives less consistent results, often producing movements arising from spinal rather than cerebral origin.

EXAMINATION – HIGHER CEREBRAL FUNCTION

COGNITIVE SKILL

	Dominant hemisphere disorders
Listen to language pattern – hesitant – fluent	Expressive dysphasia Receptive dysphasia
Does the patient understand simple/complex spoken commands? e.g. 'Hold up both arms, touch the right ear with the left fifth finger.'	Receptive dysphasia
Ask the patient to name objects.	Nominal dysphasia
Does the patient read correctly?	Dyslexia
Does the patient write correctly?	Dysgraphia
Ask the patient to perform a numerical calculation, e.g. serial 7 test, where 7 is subtracted serially from 100.	Dyscalculia
Can the patient recognise objects? e.g. ask patient to select an object from a group.	Agnosia

	Non-dominant hemisphere disorders
Note patient's ability to find his way around the ward or his home.	Geographical agnosia
Can the patient dress himself?	Dressing apraxia
Note the patient's ability to copy a geometric pattern, e.g. ask patient to form a star with matches or copy a drawing of a cube.	Constructional apraxia

Mini Mental Status Examination (MMSE) is used in the assessment of DEMENTIA (page 127).

EXAMINATION – HIGHER CEREBRAL FUNCTION

MEMORY TEST

Testing requires alertness and is not possible in a confused or dysphasic patient.

IMMEDIATE memory –	Digit span – ask patient to repeat a sequence of 5, 6, or 7 random numbers.	}
RECENT memory –	Ask patient to describe present illness, duration of hospital stay or recent events in the news.	
REMOTE memory –	Ask about events and circumstances occurring more than 5 years previously.	
VERBAL memory –	Ask patient to remember a sentence or a short story and test after 15 minutes.	}
VISUAL memory –	Ask patient to remember objects on a tray and test after 15 minutes.	

Note: **Retrograde amnesia** – loss of memory of events leading up to a brain injury or insult.

Post-traumatic amnesia – permanent loss of memory of events for a period following a brain injury.

REASONING AND PROBLEM SOLVING

Test patient with two-step calculations, e.g. ‘I wish to buy 12 articles at 7 pence each. How much change will I receive from £1?’

Ask patient to reverse 3 or 4 random numbers.

Ask patient to explain proverbs.

Ask patient to sort playing cards into suits.

The examiner must compare patient’s present reasoning ability with expected abilities based on job history and/or school work.

EMOTIONAL STATE

Note: Anxiety or excitement

Depression or apathy

Emotional behaviour

Uninhibited behaviour

Slowness of movement or responses

Personality type or change.