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| <1432/c> | (Espir and Rose, 1976). It has therefore been suggested that the lateralisation of language to one hemisphere is to prevent inter-hemispheric competition in the control of speech. Indeed, at one time it was believed that requiring a natural left hander to use his right hand for writing would induce speech defects, such as stuttering, as a result of coopting the left hemisphere into language functions in competition with the right hemisphere (Travis, 1931). Although this idea of hemispheric competition is not very precise, a number of studies have been carried out to investigate speech lateralisation among stutterers. STUTTERING Jones (1966) carried out the Wada test with four patients who had stuttered from childhood, and found all four to have bilateral speech representation. After surgery (for lesions in the approximate speech areas) the stammer cleared and Wada testing revealed no difficulty with speech after injection on the side ipsilateral to the surgical removal. With the anaesthetic introduced on the opposite side, the usual speech impairment was observed. This might be taken to imply that the surgery had prevented one side of the brain from attempting to assume control of the mechanisms for speech output. However, other reports using the Wada technique have provided little evidence to suggest that bilateral speech production is a significant feature of all cases of stuttering (Andrews, Quinn and Sorby, 1972; Luessonhop, Boggs, Labowit and Walle, 1973; Dorman and Porter, 1975). Studies using the tachistoscopic (Moore, 1976), dichotic listening (Curry and Gregory, 1969; Brady and Berson, 1975; Rosenfield and Goodglass, 1980) and electroencephalographic (Moore and Lang, 1977) techniques have sometimes, but not always (Slorach and Noehr 1973; Pinsky and McAdam, 1980), suggested that a greater proportion of stutterers than controls have some language processes lateralised in the right hemisphere. Sussman and McNeilage (1975a) argued that whereas receptive aspects of language are lateralised to the left hemisphere, production of language is not so clearly lateralised in stutterers as it is in normals. Wood, Stump, McKeehan, Sheldo and Proctor (1980) compared patterns of regional cerebral blood flow in two cases of stuttering. While off medication, both subjects showed high levels of blood flow in anterior regions of the brain at the right side; with stuttering controlled by haloperidol, the flow of blood was greater in the left hemisphere. However, the situation is not simply that the right hemisphere is more implicated than usual in the production of speech. The two patients of Wood et al. showed no stuttering, and the usual blood flow asymmetry favouring the left side, when they had to read aloud |
|  <p>Key: Footprint ConEn1 Footprint ConEn2 Footprint ConEn3</p> | |
| | a passage of prose |
| | . Thus it seems to be not so much the articulation of words per se that engages the right hemisphere in these patients but <u>the spontaneous putting together of meaningful speech</u> . SPEECH AND MOTOR FUNCTIONS OF THE LEFT HEMISPHERE The association between handedness and the cerebral lateralisation of language offers much scope for speculation. It has been suggested, from an |

evolutionary point of view, that language may have arisen out of primitive man's use of manual gestures to communicate with his fellows (Hewes, 1973). Since handling of tools and weapons requires precise manipulation of the fingers and thumb, a dextral bias in hand preference for wielding these implements might have predisposed our earliest ancestors towards the use of the right hand for gestural communication. The emergence of speech might then have developed from neural systems for motor control already lateralised to the left half of the brain. The term apraxia (or dyspraxia) refers to difficulty in carrying out purposeful movements or sequences of movements, as in the manipulation of common objects. The disorder arises as a result of brain damage, particularly of the left parietal lobe, and for the label apraxia to be applicable, the patient's difficulties must not be due to problems in comprehending the examiner's instructions. Central to any definition of apraxia is the idea that any paralysis or weakness of limbs is insufficient to account for the movement disorder. Certain broad categories of apraxia are recognised (Hécaen and Albert, 1978). Ideomotor apraxia refers to an inability to correctly perform simple gestures such as a salute, making the sign of the cross or pretending to stir a cup of coffee. Ideational apraxia is seen when a patient cannot carry out a complex sequence of movements, even though he is capable of carrying out each movement individually. For example, he may strike a match perfectly well but in attempting to light a candle he may try to light the wick with the match unlit or strike the match against the candle. Constructional apraxia is an impairment in the construction of two- or three-dimensional figures as in drawing or using matches or building blocks. Dressing apraxia refers to difficulty in putting on clothes; the patient may manipulate them haphazardly, unable to relate them spatially to his own body, or he may be unable to put them on in the correct sequence. The literature on apraxia is highly confusing and contradictory. This is in part because different investigators have held different ideas as to the independence or otherwise of the different sub-types of dyspraxia or as to the essential nature of the various defects. Some have seen apraxia as primarily a defect of execution, others have considered the problem to be one of planning or of conceptual organisation.