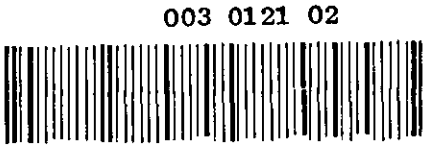

SUBJECTIVE SPACE NEEDS IN THE BUILT ENVIRONMENT

VOLUME 2 of 2 VOLUMES

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NOTES AND REFERENCES

(0.0) INTRODUCTION

1 One of the major difficulties in estimating human space requirements is that measurements must be taken in three dimensions of subjects in movement. Standard procedures of micro-motion study as originated by the Gilbreths are illustrated in:

Barnes,R.M.(1963) Motion and time study, 5th edition, New York: John Wiley & Sons.

A representative selection of more specialised procedures:

Agan,T.,et al.,(1965) A method of measuring postural attitudes. Ergonomics, 8:207-221.

Chaffee,J.W.(1961) Anthropometric photogrammetry as applied to escape capsule design. Human Factors,vol.3, no.1. March. (TV procedure).

Hetzberg,H.T.E.,et al.,(1957) Stereophotogrammetry as an anthropometric tool. Photogramm.Engng. vol.23, no.5. December.

Rowland,G.E. and C.M.Kulp (1960) A method of making dimensional measurements of complex motions. R & C Report no.60-2-2. Contract NONR-2856(00),Engineering Psychology Branch, Office of Naval Research, Department of the Navy. Washington,D.C.

Gavan,J.A.et al.,(1952) Photography: an anthropometric tool. Amer.J.Phys.Anthrop. vol.10, no.3.

A method of measuring the apparent depth of a figure which would seem to have interesting possibilities:

Gregory,R.L.(1966)'Traditional theories of the illusions'. In: B.M.Foss (ed.). New horizons in psychology. Harmondsworth:Penguin Books.

Also described in:

Gregory,R.L.(1966) Eye and brain: the psychology of seeing. London: Weidenfeld & Nicolson. p.159.

Bibliographies:

Hansen,R.and D.Y.Cornog (1958) Annotated bibliography of applied physical anthropology in human engineering. USAF,WADD,Technical Report 60-19, January 1960.

Warren Springs Laboratory. Body sizes in motion or unusual positions, Annotated Bibliography 1958-65.

Patents:

Nadler,G.and J.Goldman: Apparatus for determining velocity of human body members. U.S.Patent 2,914,730. November 24th, 1959.

(0.0) INTRODUCTION

Also described in:

Nadler,G.(1963) The measurement of three-dimensional human motions. In: E.Bennett et.al.,(eds.). Human factors in technology. New York: McGraw-Hill.pp.596-612.

Notational techniques:

The use of "Therbligs" as devised by the Gilbreths to record work performance is described in:

Barnes,R.M.(1963) Motion and time study, 5th.edition. New York: John Wiley & Sons.

A system for recording human movements during interpersonal relationships has been proposed by:

Hall,E.T.,(1963) A system for the notation of proxemic behavior. American Anthropologist. 65:1003-1026.

Systems for recording dance movements can be found in:

Causley,Margaret (1967) An introduction to Benesch movement notation. London: Max Parrish.

Laban,R.(1956) Principles of dance and movement notation. London: Macdonald & Evans.

Dunlop,Valerie Preston, (1967) Readers in kinetography Laban, 4 parts. London: Macdonald & Evans. (25 pp./part).

2 Actual use is inferred from such design guide publications as:

Bouwcentrum. Houses - Studies of elements. Functional principles in housing. A.12.1. Rotterdam: Bouwcentrum. (In Dutch and English). 1957.

Ministry of Housing & Local Government. Space in the home. Design Bulletin 6. HMSO. 1963.

3 One procedure requires the recording and comparison of the electrical potential produced by muscles when they contract.

Murrell has written:
"...In theory the greater the activity of a muscle the greater will be the potential. Thus it is argued that a movement which displays greater activity may be less satisfactory than one which displays less, provided both achieve the same end. It is also thought that a fatigued muscle will show greater activity than one which is not. There are some difficulties in the way of this simple interpretation ....."

Murrell,K.F.H.(1965) Ergonomics. London: Chapman & Hall.

(0.0) INTRODUCTION

4 Jones,J.C.(1963) The method of fitting trials.Architect's Journal. Information Sheet 1186. 13th February.

Robins,W.J. Minimum standards for circulation spaces between walls, tables and chairs established by photography of body movements. M.Sc.,Dissertation. University of Manchester.1966.

5 Fisher and Cleveland dichotomise "barrier response" to body-image boundary penetration into the qualitative categories of "high-barrier" and "low-barrier".

Note: The "barrier score" obtained by a subject is derived by a special way of interpreting his response to Rorschach or Holtman ink-blot stimuli.

Fisher,S.and S.E.Cleveland(1968) Body-image and personality. 2nd.edition.New York: Dover Publications.

6 "...whatever degree of stability characterises risk-taking must be measured on a psychological scale.There can be no ground, for example, for gratuitously assuming that the GSR (galvanic skin response) measures risk-taking without any demonstrable correlation between GSR and risk as defined subjectively (Taylor,D.H. 1964.Drivers' galvanic skin response and the risk of accident. Ergonomics,7: 439-451)."

Cohen,J.and I.Christensen (1970) Information and choice. Edinburgh: Oliver and Boyd.p.105.

7 It seems true, as Morris implied, that we are prepared to surrender some measure of personal safety to obtain stimulation by exploratory activity:

> "When a man is reaching retiring age he often dreams of sitting quietly in the sun....If he manages to fulfil his sun-sit dream, one thing is certain: he will not lengthen his life, he will shorten it. The reason is simple - he will have given up the Stimulus Struggle.... The object of the struggle is to obtain the optimum amount of stimulation from the environment. This does not mean the maximum amount. It is possible to be over-stimulated as well as under-stimulated...."
>
> Morris,D.(1968) The human zoo.London:Cape.p.182.

Thus we can give up the "Stimulus Struggle" and yet retain the desire for personal safety.

Robert Ardrey suggests that the desire for stimulation is stronger than the desire for security, and that having found security we cannot wait to throw it away:

(0.0) INTRODUCTION

> "There are three innate needs which demand satisfaction. The first is identity, the opposite of anonymity, and it is highest. The second is stimulation, the opposite of boredom. The lowest is security, the opposite of anxiety. .....Achievement of security and release from anxiety presents us with boredom.....We are pressed as in a vise between the achievement of security and the denials of anonymity. No way presents itself but stimulation."
>
> Ardrey,R.(1970) The social contract.London: Collins. pp.289-90.

Underlying Ardrey's view of man's urban state is the assumption that most of us have achieved security; but Jane Jacobs would seem to hold a more realistic outlook as to the priorities of our emotional needs in the great cities of the built environment:

> "To any one person, strangers are far more common in big cities than acquaintances. More common not just in places of public assembly, but more common at a man's own doorstep. Even residents who live near each other are strangers, and must be, because of the sheer numbers of people in small geographical compass. The bedrock attribute of a successful city district is that a person must feel personally safe and secure on the street among all those strangers. He must not feel automatically menaced by them. A city district that fails in this respect also does badly in other ways and lays up for itself, and for its city at large, mountain on mountain of trouble".
>
> Jacobs,J.(1961) The death and life of great American cities. New York: Random House. p.30. (Emphasis added)

Jacobs' value orientation towards safety as the basis for particular spatial arrangements involving housing type, density, etc., is discussed by:

Michelson,W.(1970) Man and his urban environment.Reading, Massachusetts: Addison-Wesley. pp.139-141.

8 Cohen and Christensen distinguish between psychological probability and mathematical probability:

> "The task of the psychology of decision-taking ....is to study the subjective elements that enter into decision-making partly for their intrinsic interest and partly because only when their nature is understood will it be possible to improve and control them, and remove, or at

least be on guard against, their erratic features .....Decision theory, by contrast, is a rigorous mathematical discipline. Its exponents seek methods of reaching an optimal decision policy, programme, or a sequence of these, given a criterion. Their aim is to eliminate human fallibility and other subjective elements for the decision-making process."

Cohen,J.and I.Christensen (1970) op.cit.,p.64.

9 "Flight Distance" (the outer boundary of "Critical Distance") are terms Hediger gave to the space an animal consciously maintains between itself and feared members of another species.
In meetings between members of the same species, an animal will maintain its "Individual Distance", i.e. a space around it, if the species is "non-contact". "Non-contact" denotes that species members avoid all physical contact except for breeding and weaning. "Contact" and "non-contact" species behaviour is not correlate with gregariousness and solitary habits. For example, starlings are gregarious birds but they cannot stand physical contact with their own kind; whereas seals are also gregarious and seem to enjoy such physical contact.
The social force implied by gregariousness amongst animals has been termed "social tendency" ("social distance" by Hediger: but see notes to sect.2.5.4). But there does not appear to be any accepted term in discussion of animal and human behaviour to label the force which repels mankind and animals from confrontation with the stranger (except perhaps "negative valence" from Lewinian theory).
Ardrey has published attention to the fact: "...for the opposite and probably more powerful social force, the rejection of strangers, I can find no term in the literature...I shall refer to the social rejection of strangers as animal xenophobia". He notes that:"... except for a few monographs ....xenophobia has been little written about". Ardrey,R.(1970)op.cit.,p.236.
The human equivalent of "Individual Distance" has been subsumed in the term "Personal Space"; but since "contact" as well as "non-contact" type people all have "personal space" the terms "personal space" and "individual distance" are not really interchangeable. Moreover, it can be argued that whereas the solitary individual can have "personal space" he cannot possess "individual distance" in his solitary state since this can only be expressed spatially in relation to another person.

Hediger,H.P.(1950) Wild animals in captivity.London: Butterworth.

(0.0) INTRODUCTION

10 Fisher and Cleveland state:

> "The Witkin type of task has no apparent interpersonal implications and would probably have no consistent ego-involving significance to a great many subjects (of Witkin). Does this not raise the possibility that the Barrier score is related to self-steering behavior only in so far as that behavior occurs in a socialized ego-involving context that has to do with relating to people?
>
> Fisher,S.and S.E.Cleveland (1968) op.cit.,p.150.

11 Sommer has written:

> "It is common under certain conditions for one person to react to another as an object or part of the background. Examples would be the hospital nurses who discuss a patient's condition at his bedside....the negro maid in the white home who serves dinner while the husband and wife discuss the race problem.... the janitor who enters an office without knocking to empty wastebaskets ....and subway riders who...prefer to treat others (so)."
>
> Sommer.R.(1969) Personal space. Englewood Cliffs, New Jersey: Prentice Hall. p.37.
>
> Perhaps our observance of social norms is not entirely separable from some consideration of our personal safety? It is foolish to be rude to those in a position to do us harm.

12 Cohen,J.(1968) "Liability to accidents". In: Cohen,J. and B.Preston: Causes and prevention of road accidents. Part 1. London: Faber. p.81

Cohen,J.and I.Christensen (1970) op.cit.,p.106.

(1.0) SURVEY

(1.1) THEORY AND SPECULATION

(1.1.1) What is usually implied by a "safe distance".

13 "The holding of ground that yields the means of subsistence is the simplest and most primitive form of property.....Among the higher animals and especially in some of the birds and mammals....forms of tenure have developed where the relationship between 'possessions' and 'resources' is much less direct and more symbolical.....There is generally also a equally important kind of possession, not 'real estate' at all, but instead abstract and intangible: this is the status of the individual in the social hierarchy which is very closely and often inextricably bound with the first kind."

Wynne-Edwards, V.C. (1962) Animal dispersion in relation to social behaviour. Edinburgh: Oliver & Boyd. p.190.

(1.1.2) The safe distance as an expression of territoriality.

14 "An ancient custom, the beating of the bounds, becomes a modern charity fund-raiser in Rugby on Sunday, July 5. That day, men, women and youngsters will be on a sponsored walk of nearly 20 miles along lanes and footpaths close to the borough boundary...."

"Beating the bounds", Coventry Evening Telegraph, 20/6/70.

15 But not what Hediger terms an animal's "social distance" which he defines as "...the maximum distance that individuals of one society will move from one another".

Hediger, H.P. (1962) The evolution of territorial behaviour. In: S.L. Washburn (ed.) Social life of early man. London: Methuen. p.54.

Hediger on "Individual Distance":

"(Some species) not only tolerate close physical contact with their fellows during rest....but even deliberately seek such contact (wild boar, many primates, rodents, parrots, titmice, weaver-birds, cat-fish etc.) These contact species have no individual distance..... Individual distance exists in animals of the distance type (many ruminants, flamingoes, doves, seagulls, laughing gulls, starlings, swallows, pike etc.,). The representatives of these species only allow others to approach up to their individual distance. They do not tolerate physical contact, apart from reproduction".

Hediger, H.P. (1950) Wild animals in captivity. London: Butterworth. p.111.

(1.1.2)

Sommer has explained why it is useful to make a distinction between the protection of space by animals and by humans:

> "Individual distance may be outside the area of personal space - conversation between (the occupants of) two chairs across a room exceeds the boundaries of personal space, or individual distmay be less than the boundaries of personal space .....If there is only one individual present, there is infinite individual distance, which is why it is useful to maintain a concept of personal space, which has also been described as a portable territory, since the individual carries it with him wherever he goes although it disappears under certain conditions, such as crowding". (Sommer's emphasis).
>
> Sommer,R.(1969) Personal space. Englewood Cliffs, New Jersey: Prentice Hall. p.27.

Lorenz says of "Individual Distance":

> "We may conceive the space, whose radius is represented by the individual distance, as a very small movable territory, since the behavioural mechanisms ensuring its maintenance are fundamentally the same as those which effect the demarcation of territory".
>
> Lorenz,K.Z.(1966) On aggression. London:Methuen.p125.

(1.1.3)The literature of territory.

16 Haggett describes the main theoretical models of locational structure as proposed by geographers Thünen, Christaller, and Lösch; by sociologist Max Weber; and by economists Isard, Garrison, Berry, and Hagerstrand.

Haggett,P.(1965) Locational analysis in human geography. London: Edward Arnold.

17 Studies in hospitals, asylums, and prisons:

Sommer describes the behaviour of schizophrenic patients (1959). Other studies of institutional behaviour are cited in Sommer (1969) op.cit.,

Sommer,R.(1959) Studies in personal space. Sociometry. 22:247-260.

Osmond,H.(1966) Some psychiatric aspects of design. In: L.B.Holland (ed.) Who designs America? Garden City, New York: Doubleday. pp.281-318.

(1.1.3)

An account of experiments to determine the personal space of criminals at the U.S.Center for Federal Prisoners in Springfield,Mo., was given in Time Magazine,(6 June 1969).
Violent subjects would not allow the experimenter, A.F.Kinzel, to approach nearer than three feet,whereas more tractable prisoners could be approached half that distance. Personal space for non-violent prisoners was found to be nearly cylindrical, but that for men with records for violence bulged at the rear - an approach they regarded as very menacing.

18 Cross-cultural studies in the social organisation of space:

Hall,E.T.(1959) The silent language, Garden City, New York: Doubleday.

Hall,E.T.(1969) The hidden dimension. London: The Bodley Head. New York: Doubleday (1966).

19 Studies in pubs, dormitories, and libraries are referred in Sommer (1969) op.cit.,

Geriatric studies:

Lipman,A.(1967) Chairs as territory. New Society. April.

20 Broadbent,D.E.(1964) Behaviour. London: Methuen.Ch.1. London: Eyre & Spottiswoode (1961).

(1.1.4)The ecology of the safe distance.

21 "Man has innumerable ways of adaptively ritualising his behaviour, many of them analogous, if not homologous, to those found in animals".

Foreword by Sir Julian Huxley. In: K.Z.Lorenz (1966) On aggression. op.cit., p.viii.

"The likelihood that the motivational control of territorial behaviour in man is at a different level from that of fishes and birds suggests that human resemblance to the lower animals might be largely through analogy rather than homology".(Emphasis added)

Crook,J.H.(1966) The nature of territorial aggression. In: M.F.A.Montagu (ed.) Man and aggression. Oxford University Press. p.172.

"One should not assume an animal to have a higher psychical faculty than the simplest possible to explain its behaviour" (Lloyd Morgan's canon). Quoted by Broadbent (1964) op.cit., p.22.

(1.1.4)

22 Nice,Margaret M.(1941) The role of territory in bird life.American Midland Naturalist.26:441-487.

Hinde,R.A.(1956) The biological significance of the territories in birds. Ibis. 96:340-369.

Tinbergen,N.(1957) The functions of territory. Bird Study 4:14-27.

Lack,D.(1966) Population studies of birds. Oxford University Press.

Carpenter,C.R.(1958) Territoriality. In: A.Roe and G.G.Simpson (eds.) Behaviour and evolution. New Haven: Yale University Press. pp.224-250.

23 Lorenz,K.Z.(1966) On aggression. London: Methuen. Published (1963) Das Sogenannte Böse. Vienna.

Ardrey,R.(1967) The territorial imperative.London: Collins.

Storr,A.(1968) Human aggression. London: Allen Lane, The Penguin Press.

24 Montagu,M.F.A.(ed.)(1968) Man and aggression.Oxford University Press.

Lewis,J.and B.Towers (1969) Naked ape or homo sapiens? London: The Garnstone Press.

25 Davy,John. "Exploring human nature". Article in The Observer Review, 20 April,1969.

26 Hinde,R.A.(1962) The relevance of animal studies to human neurotic disorders. In: D.Richter, J.M.Tanner, Lord Taylor,and O.L.Zangwill (eds.) Aspects of psychiatric research. Oxford University Press.

27 Sommer,R.(1959) op.cit.,

Sommer,R.(1969) op.cit.,p.70, wrote:

> "The most extreme form of withdrawal from other people is manifested by schizophrenic individuals who are fearful of being hurt in social intercourse. Our studies (in 1959) have shown that they not only remain too far from others but on occasion come too close."

(1.1.4)

28 Anthony Storr remarked:

> "Psychopaths remain alarmingly unafraid both of their own and of other's hostility. They commonly exhibit an unusual disregard for danger, whether this be a threat from other persons or else from situations upon which the average man looks with apprehension. Some of the most intrepid pilots of aircraft during the war were psychopaths whose abnormality secured them esteem in wartime, but whose ruthlessness and lack of inhibition made them intolerable to society in time of peace. Such men behave as if they were omnipotently immune from danger; and their courage is less impressive than it appears, since it is based upon a lack of appreciation of danger rather than upon a stalwart facing of real peril".
>
> Storr,A.(1968) op.cit.,p.104.
>
> One is reminded of the parody of Kipling: If you can keep your head when all around are losing theirs then you don't understand the situation.

29 Phobias are discussed by:

Metzner,R.(1961) Learning theory and the therapy of neurosis. In: The British Journal of Psychology. Monograph Supplement 32-35. 1961-62. Cambridge Univsity Press.

30 Lack,D.(1954) The natural regulation of animal numbers. Oxford University Press.

Calhoun,J.B.(1962) Population density and social pathology. Scientific American. 206:139-146.

31 When the Reverend Thomas Malthus wrote his "Essay on Population" (1798), economic theory held that there was a Wage Fund which could not be increased, and that any general advance in wages had to be taken from the money available for use as fresh capital. As a result, industry would decline and increased competition for fewer job opportunities would depress wages and living standards. Malthus believed that the growth of population would worsen this competition as an increasing number of workmen would have to share the existing Wage Fund.

A modern economist, K.E.Boulding,has written:

> "This is the famous dismal theorem of economics that if the only check on the growth of population is starvation and misery, then no matter how favourable the environment or how advanced the technology the population will grow until

(1.1.4)

it is miserable and starved. The theorem, indeed, has a worse corollary which has been described as the utterly dismal theorem. This is the proposition that if the only check on the growth of population is starvation and misery, then any technological improvement will have the ultimate effect of increasing the sum of human misery, as it permits a larger population to live in precisely the same state of misery and starvation as before the change.

Boulding,K.E.(1956) The image. Ann Arbor: University of Michigan Press. p.117.

32 Montagu,M.F.A.(1968) "The new litany of innate depravity". In: Man and aggression. op.cit., p.8.

33 Broadbent,D.E.(1964) Behaviour. op.cit., p.48.

34 Geiwitz has written: "While approach-avoidance conflicts were introduced by Lewin prior to Miller's work, Miller's concepts are based on ingenious experimental work by Brown (1948). See:

Geiwitz,P.J.(1969) Non-Freudian personality theories. Belmont, California: Brooks/Cole Publishing Co.p.58.

Brown,J.S.(1948) Gradients of approach and avoidance responses and their relation to motivation. Journal of Comparative and Physiological Psychology.41:450-65.

Miller,N.E.(1944) Experimental studies in conflict. In: J.McV.Hunt (ed.) Personality and the behavior disorders. Vol.1. New York: Ronald Press.

Discussion of the very detailed issues involved in the dynamics of conflict, i.e. intrapersonal conflict and not that between persons, is to be found in either:
Vernon,M.D.(1969) Human motivation.C.U.P.. Pp.134-162.

Broadbent,D.E.(1964) op.cit., pp.76-98.

35 Argyle,M.(1967) The psychology of interpersonal behbehaviour. Harmondsworth: Pelican Books. pp.19-20,25.

Namely that: "Intimacy is a function of: physical proximity, eye-contact, facial expression (smiling), topic of conversation (how personal) and tone of voice (how warm) etc.,"

36 Vernon,M.D.(1969) Human motivation. op.cit.,

37 Howard,I.P.and B.Templeton (1966) Human spatial orientation. New York: Wiley & Sons.

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38 Benham,T.A.,and J.M.Benjamin (1962) Optical obstacle detector. Proc.International Congress on Technology and Blindness. New York.

Benham,T.A. (1963) Electronic travel aids for the blind. In: E.Bennett, J.Degan and J.Spiegel (eds.). Human factors in technology. New York: McGraw-Hill.

Gibson,R.J.(1963) The Franklin Institute electronic cane. In: E,Bennett et al.,(eds.) Human factors in technology. op.cit.,

Kay,L.(1964) An ultra-sonic sensing probe as a mobility aid for the blind. Ultrasonics. April/June.

Rice,C.E.(1967) Human echo perception. Science,155: 656-664.

39 Lamarck (1744-1829), explained Charles Singer, held that species maintain their constancy only so long as their environment remained unchanged. In accordance with Lamarck's "law of use and disuse" he supposed that changes in environment lead to the special development of certain organs and that such development is transmitted to offspring. Singer continues:

> Thus a deer-like animal, finding herbage scanty, took to feeding on leaves of tress. It needed a longer neck to reach the leaves. In the course of generations during which the poor creatures were always straining their necks to reach their food, long necks became an ever more accentuated feature of their anatomy. Thus emerged a beast recognisable as a giraffe. Conversely, useless organs, such as the eyes of animals that live in darkness, being unexercised, gradually become functionless and finally disappeared....The great assumption is that acquired characters are inherited...but it is certain that in the sense suggested by Lamarck they are not.

Singer,C.(1959) A short history of scientific ideas. Oxford University Press. pp.505-6.

40 It is popular belief that the blind develop a "sixth sense" or an hypersensitivity to the presence of other people and to obstacles.
French and American research into this notion conducted between 1920-50 is cited by P.A.Zahl (1950).
Amons and his associates, and others, investigated the possibility that the blind developed a tropic "facial vision".

(1.1.4)

Zahl,P.A.(ed).(1950) Blindness:modern approaches to the unseen environment. Princeton,N.J.:Princeton University Press.

Amons,C.H.,P.Worchel and K.M.Dallenbach (1953) Facial vision: the perception of obstacles out of doors by blindfolded and blindfolded-deafened subjects. Amer.J.Psychol. 66: 519-553.

The basis of "facial vision" is distance discrimination based on the echoes of footsteps and other sounds made by the observer himself. According to Hochberg (1964), the blind locate obstacle surfaces in space by judgement of the time taken for the sound of their own breathing and footsteps to be reflected from surrounding surfaces (approximately 1/1000 sec. per 6 inches of distance from the reflecting surface).

Hochberg,J.E.(1964) Perception. Englewood Cliffs,N.J. Prentice-Hall. p.47.

Another possible source of spatial orientation by the blind is through sensing the temperature changes in their surroundings. The human skin as "an almost perfect emitter of infrared radiation in the spectral region beyond 3 microns" is described by Barnes.

Barnes,R.B.(1963) Thermography of the human body. Science. vol.140:870-7.

41 Solomon,P.et al.,(1961) Sensory deprivation. Harvard University Press.

Schein,E.H.et al.,(1961) Coercive persuasion. New York: Norton.

Vernon,J.(1966) Inside the black room. Harmondsworth: Pelican Books.

Bibliography of more than a thousand titles:

Weinstein,S.,et al.,(1968) Bibliography of sensory and perceptual deprivation, isolation and related areas. Percept. Motor Skills, 26,1119.

42 Thomas de Quincey, The confessions of an English opium eater. London: Dent. (First published 1821).

Huxley,A.(1954) The doors of perception. London: Chatto & Windus; Harmondsworth: Penguin.

(1.1.4)

Critchley (1950) refers to the autobiographical literature of drug-taking, and refers to the papers on the effects of hashish reviewed by Walton (1938); and the effects of mescal hallucinations reviewed by Kluver (1938), Serko (1913), and Knauer & Maloney (1913).

Critchley,M.(1950) The body-image in neurology. Lancet, i.February 25. p.339.

Barron and his associates describe the chemical structure, and the subjective and physiological effects of consuming peyote, LSD, mescaline,psilocin and psylocybin.

Barron,F., M.E.Jarvik and S.Bunnel (1964) The hallucinogenic drugs. Scientific American. vol.210,4:3-11.

Perceptual experiments using hallucinogenic drugs:

Liebert,R.S., H.Werner & S.Wapner (1958) Studies in the effect of lysergic acid diethylamide (LSD-25): self- and object-size perception in schizophrenics and normal adults. AMA Arch.Neurol.Psychiat.79:580-4.

43 For example, the worship of Cybele in Phrygia, ancient Asia Minor, by the priestly Corybants was performed with extravagent dances.
The cult of the Whirling Dervishes (Dancing Dervishes) is also well-known.

In medieval times, the licentiousness which accompanied Maypole dancing (i.e.tree worship) was condemned in Merrie England. (Fraser, Sir James, The golden bough, abridged edition. London: Macmillan. 1922,p.123)

Oracular and divination procedures (e.g.gyromancy) may require prolonged spinning movements by the seer.

Schilder notes how rapid movement, especially when it is circular, not only changes the vestibular reactions and with it the lightness and heaviness of the body, but leads to a change in the psychic attitude.
Schilder,P.(1935) The image and appearance of the human body.London: Kegan Paul,Trench, Trubner & Co. p.207.

For example, the gymnastic postures of Yoga.

Pictorial evidence indicates that bull-worship in ancient Crete was accompanied by "rodeos" in which "bull-dancing" displays were given by gymnasts.

44 Head,Sir Henry,(1920) Studies in neurology, 2 volumes, Oxford University Press.

Bartlett,Sir Frederick C.(1932) Remembering.Cambridge University Press.

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Oldfield,R.C.and O.L.Zangwill (1942) Head's concept of the schema and its application in contemporary British psychology. Brit.J.Psychol. 32:267-286, 33: 58-64.

45 Freud,Sigmund (1913) Totem and taboo. London: Hogarth Press,1955.

It is an old charge that Freud's thinking was too influenced by the Viennese society from which he drew his patients. Social anthropologists have examined other cultures to test the truth of the charge. Such studies are referred to by:

Price-Williams,D.(1966) Cross-cultural studies. In: B.M.Foss (ed.). New horizons in psychology. Harmondsworth: Pelican.

46 Hall,E.T.(1955) The anthropology of manners. Scientific American. 192:84-90.

Hall,E.T.(1959) The silent language. Garden City, New York: Doubleday & Co.

47 Goffman,E.(1959) The preservation of self in everyday life. Garden City, New York: Doubleday & Co.

(1.1.5)The embodiment of the SAFE DISTANCE.

48 Critchley,M.(1950) The body-image in neurology. Lancet, i.February 25.

Fisher,S.(1969) Body experience in fantasy and behavior. Century Psychology Series. New York: Appleton Century Crofts.

Kolb,L.C.(1954) The painful phantom. Springfield, Illinois: Charles C.Thomas.

49 Novosti Information Service, Novosti Press Agency, Moscow,USSR. Bulletin No.7275. 30 December,1968.

The bulletin states:

Electrical field of Human Body

The electrical field of human muscles and the heart has been recorded at the physiological cybernetics laboratory of Leningrad University. The research project is headed by Pavel Gulyayev.

(1.1.5) "It was found that an electrical field induced by biological currents generated by all living tissues is created in the air around the human body. The recording of such a field has been called an electro-aurogram.

It was also found that the electrical field of the human heart is changing together with the pulse rate. The field's maximum strength coincides with the contraction of the heart muscle. The strength of the field is increased by physical exercise and emotional stimulation.

The muscles generate an electrical field of an extremely complicated shape which changes with shifts in a person's position and even when certain movements are merely contemplated.

The scientists have also recorded and measured in laboratory and natural conditions electro-aurograms of a bumble bee, mosquito, grass-hopper, ant and other insects. They have developed a device to detect such very weak electrical fields at a distance of up to centimetres." (Verbatim)

Correspondence with the News Agency and with Leningrad University produced no further information.

Fisher & Cleveland refer to the work of Schneider who has suggested:
"...that the heart plays a very fundamental role in determining the individual's image of himself....(as) it is a unique body organ that produces a rhythm which is felt all over the body. (Schneider) implies that this rhythm is a framework within which most important sensations are experienced. He refers to the image of the heart as the "root of the ego". (He has suggested) that the patterns of regularity and speed shown by the heart are sometimes correlated with degree of ego integration....."
Schneider,D.E.(1954) The image of the heart and the synergic principle in psychoanalysis (psychosynergy). Psychoan.Rev., 41:197-215. Quoted by:

Fisher,S.and S.E.Cleveland (1968) Body image and Personality.2nd. edition.New York: Dover Publications. p.23.

Apparatus for monitoring cardiac events without the need for direct contact with the body is manufactured by the Convair Division of General Dynamics, San Diego, USA. It is described as the "Field Effect Monitor".

(1.1.6) The literature of imagery.

50 Critchley,M.(1950) The body-image in neurology.Lancet. op.cit.,

Fisher,S.and S.E.Cleveland(1968)Body image and personality. op.cit.,

(1.1.6)

51 Richardson,A.(1969) Mental imagery. London: Routledge and Kegan Paul.

52 Holt,R.R.(1964) Imagery: the return of the ostracised. Amer.Psychol., 19:254-264.

(1.1.7) Differentiating the SAFE DISTANCE from other subjective space needs.

53 Our body-image.

Critchley noted that the idea of the body-image has both conceptual and perceptual components and that this has given rise to a plethora of synonyms for the body-image in the literature: "....terms like 'body image', 'body schema', 'corporeal schema', 'image de soi' (have been) employed more or less interchangeably...." (To which could be added: 'body percept', 'body concept', and self-image - but not 'self esteem' which is the evaluation of self, i.e. how favourably we regard ourselves.)

He remarked how:

> "The notion (of the body-image) is a complex one, for it includes such activity as the imagery which one possesses and utilizes during states of rumination or brooding, including the predormitum, and also states of dreaming. This is a purely conceptual matter. But in addition it includes actual bodily sensations which may be perverted in kind or natural, arising from part or perhaps the whole of the anatomy.....But the two notions, however cognate, are actually disparate. The former is imaginal, the latter mainly perceptual in nature, and yet both stand within the fabric of the terms 'body-image' or 'body schema' .....Clearly an all-embracing term is needed..... (Critchley suggests)...the less definitive term 'corporeal awareness' to replace both body-image and 'body schema'.
>
> Critchley,M.(1968) Corporeal awareness (Body-image; Body-schema). In J.G.Howells (ed.) Modern perspective in world psychiatry. vol.2. Edinburgh: Oliver & Boyd. pp.131-145.

Our territorial claim.

The body-image has not yet been incorporated into the idea of "personal space", perhaps because the body-image can be penetrated by objects whereas according to Sommer (1969,op.cit.,p.37) "personal space cannot be penetrated by objects or 'non-persons".

Originally, Sommer (1959) described "personal space" as equivalent to an animal's "individual distance". His description (1969) is now enlarge to include territory.

(1.1.7)

Thus, Sommer (1959) excluded "territory" from "personal space":

> "The concepts of 'personal space' can be distinguished from that of 'territory' in several ways. The most important difference is that personal space is carried around while territory is relatively stationary. The animal or man will usually mark the boundaries of his territory so that they are visible to others, but the boundaries of personal space are invisible. Personal space has the body as its center, while territory does not. Often the center of territory is the home of the animal or man. Animals will usually fight to maintain dominion over their territory but will withdraw if others intrude into their personal space". (Emphasis added)

Sommer (1969) subsumes "territory" into "personal space":

> "The title of this book, 'Personal Space', reflects the usages of the term. The first refers to the emotionally charged zone around each person, sometimes described as a soap bubble or aura, which helps to regulate the spacing of individuals. The second usage refers to the processes by which people mark out and personalize the spaces they inhabit. (Emphasis added)

Sommer,R.(1959) Studies in personal space. op.cit.,
Sommer,R.(1969) Personal space. op.cit., (p.viii).

We can also note that "individual distance" has been described as a portable territory (Hediger; Lorenz); and that the body-image has been envisaged as a portable screen interposed between an individual and outer situations (Fisher & Cleveland). References are cited elsewhere in these notes.

54 Keiser,S.(1952) Body ego during orgasm. Psychoan. Quart., 21:153-166.

55 Chermayeff,S.and C.Alexander (1966) Community and privacy. Harmondsworth: Pelican Books. (1963) New York: Doubleday.

(1.1.8) The operational characteristics of the SAFE DISTANCE.

56 Von Uexkull wrote:

> "...(to) glimpse the worlds of the lowly dwellers of the meadow...we must first blow, in fancy, a soap bubble around each creature to represent its own world, filled with the perceptions which it alone knows....This we may

(1.1.8)

"call the 'Umwelt' - the phenomenal world or the self-world of the animal."

Von Uexkull,J.J.(1934) A stroll through the worlds of animals and men. In: Claire H.Schiller (ed.) Instinctive behavior. London: Methuen(1957).

57 Grossman,F. The paintings of Breugel. London:Phaidon. n.d.

58 Wolff,K.H.(ed.)(1950) The sociology of Georg Simmel. Glencoe, Illinois: The Free Press. p.321.(Quoted by: Goffman,E.(1956) op.cit., p.46.)

59 Hall,E.T.(1966) The anthropology of space. The Architectural Review. September:163-6.

60 Various writers have drawn attention to this in similar phraseology:

Schilder wrote:

"Language throws considerable light on this relation (emotional distance). We may say of a person with whom we are in emotional relations that he is near to us."
Schilder,P.(1935) op.cit., p.236.

Hall has said:

"How (physically) close two people can come is a function of their relative status, what they are doing, how they feel about each other at the moment and where they were brought up..... Within any culture a change in the distance signifies a change in any one of the first three variables. "'I felt him withdraw', and 'Our relationship became close with time')."
Hall,E.T.(1966) The anthropology of space. op. cit., p.164.

In the same vein, Lee has noted:

"It is no accident that we use terms of physical space to describe social relationships. 'We have always been very close'; 'he is just below me'; 'the boss gets on my back', etc., These denote functional associations and are highly articulated with memory and meanings."
Lee,T.R.(1967) The conception of space and control of environment. Arena. The Journal of the Architectural Association. vol.82.no.908.

61 We noted in the Introduction how habituation may promote in us an attachment for the familiar (p.4).

(1.1.8) Sommer referred to an interesting experiment where repeated exposure to the same stimuli resulted in an increased liking:

> "Zajonc,and Harrison have studied the connection between exposure and preference. In one study people were shown a series of photographs of faces - some faces were exposed once, some twice, some ten times, some 25 times. Afterwards, it was found that the more a face had been shown to a person, the more he liked it. The same result was obtained when Chinese characters were exposed as stimuli. The more a Chines character was exposed, the more likely did people feel that it stood for an attractive word or something they would like."
> Sommer,R.(1969) op.cit.,p.169.

The impressions we form of events described in various media are discussed by:
Warr,P.B and C.Knapper(1968) The perception of people and events. London: Wiley.

62 Schilder described similar sensations experienced durtravel in an elevator. He gave several examples, from which are:

Ex. 4 When the elevator goes down, the arms go up and become lighter. The same is true about the body until the speed has become steady. Then the body becomes lighter and seems to elongate.

Ex. 5 When the elevator is stopped, the legs become heavier, but the rest of the body continues to go down, so that below the feet there are two lighter phantom feet. At the same time the body becomes shorter....

Ex. 6 A further after-sensation may come. A phantom,a mass, goes down the body shortens.

p. 96 Under the influence of vertical movements a dissociation occurs in the image of the body, so that a part of the substance of the body goes out of the body in the sense of the positive aftersensation.

Schilder,P.(1935) op.cit., pp.94-6.

63 Jordan,N,(1968) Themes in speculative psychology. London: Tavistock Publications. p.135.

Decision-making under uncertainty from a Gestalt viewpoint. Essays circulated by Jordan at the Institute of Defense Analyses, Washington,D.C.

64 Cohen,J.(1964) Behaviour in uncertainty.London: Allen & Unwin.

(1.1.8) Cohen,J.(1957) Subjective probability. Scientific American. November: 2-6.

Cohen,J.(1968) Hazard and risk on the road. In:Cohen,J. and B.Preston.Causes and prevention of road accidents. London: Faber. p.35.

65 Gibson,E.and R.Walk (1960) The "visual cliff". Scientific American. 202:64-71.

66 Cratty wrote:

> "Failure to accept and adjust to bodily changes during adolescence may have a marked psychological effect upon behaviour. Increased awkwardness during this period of life may be not only the result of sudden spurts in long bone growth and the subsequent need for neuro-muscular functioning to 'catch up' but also attributable to emotional tensions related to alterations in the self-concept."

Cratty,B.J.(1967) Movement behavior and motor learning.2nd.edition.Philadelphia: Lea & Febiger. p.124.

(1.1.9) The "UNSAFE DISTANCE".

67 Cohen,J.and I.Christensen (1970) Information and choice. Edinburgh: Oliver & Boyd. p.77

68 Edwards,W.(1954) The theory of decision making. In: W.Edwards and A.Tversky(1967) Decision making. Harmondsworth: Penguin Books. pp.13-64.

69 Cohen,J.and I.Christensen (1970) op.cit., p.4.

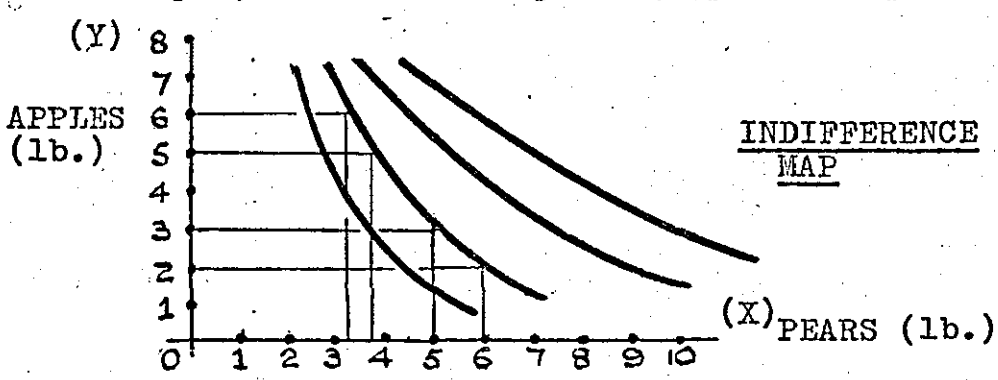
70 Notion of utility:
Utility theory is too complicated to explain in detail. Readers may refer to any good textbook of economic theory. For example: An elementary text - Samuelson,P.(1958) Economics.London: McGraw Hill. More advanced: Stonier,A.W and D.C.Hague (1953) A text book of economic theory. London: Longman.Very difficult treatises involving utility concepts can be found in the topic area 'welfare economics';these require considerable mathematical ability.

Briefly, the idea is that every action and object can be considered from the point of view of its pleasure or pain-giving properties, i.e. its capacity to give satisfaction or 'utility'. Faced with choice, people will select that which provides an excess of positive over negative utility. The utility of a good is also a function of the amount already possessed; it is therefore subject to diminishing returns.

(1.1.9) More complicated is the relationship between the utility of two or more goods or actions, for total utility is not an additive function of independent utilities. Each is substituted against the other.

The situation of consumer choice can be presented via 'indifference curves' which together constitute an 'indifference map' of the individual's scale of preferences. If we limit our explanation to situations where there are only two goods we can illustrate this kind of map in the fashion below. More goods require further dimensions of space; three could be shown as forming planes in space - more than three cannot be illustrated graphically in this form. (Unless one axis represents money).

For example, consider two goods (apples and pears):



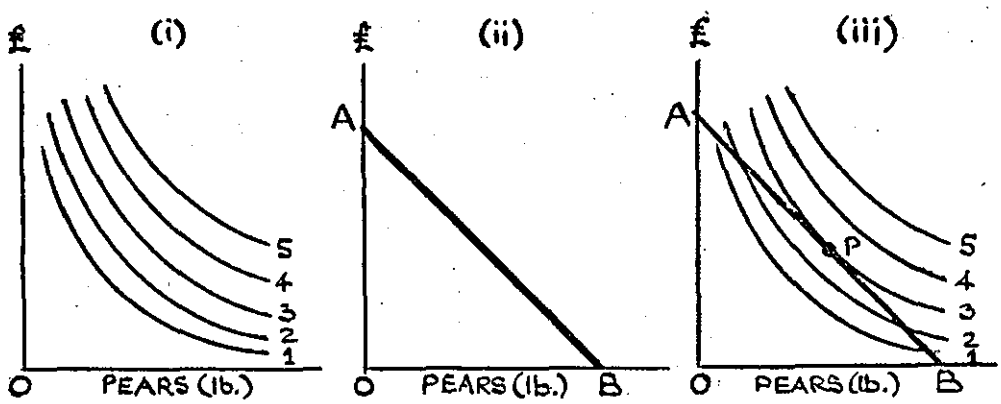
Each curve represents different combinations of the two goods which an individual might regard as providing him with the same amount of satisfaction, i.e. any point on a single curve represents the same level of satisfaction. Different curves represent higher and lower levels of satisfaction. An indifference curve is therefore similar to a contour line which shows equall heights above sea-level, but, of course, we cannot quantify satisfaction in the manner of spot heights, we can only say that one level is higher than another.

We make three assumptions about the shape of an indifference curve: First, we assume that it always slopes downwards from left to right. If it was horizontal, a consumer would be equally satisfied with a single amount of (Y) and any amount of (X); if it was vertical the reverse would hold; if it sloped upward to the right greater amounts of (X) and (Y) would give the same satisfaction as less amounts. Second, indifference curves never cross each other, since the point of intersection would imply that two levels of satisfaction represented by the individual lines have somehow become the same level. Third, we assume all indifference curves to be convex to the origin (0). In terms of marginal significance the 'convexity rule' means that as we move along any indifference curve, increasing the amount of one good and decreasing the amount of the other, the marginal significance of the

(1.1.9) one good in terms of the other will always diminish as more of the former is acquired. For example, having 6 pounds of apples an individual might give up one pound of apples to gain a half pound of pears; but having only 3 pounds of apples he would give up one pound of them only if he could receive one pound of pears in exchange. The marginal significance of pears in terms of apples diminishes as more pears are acquired and vice-versa. Marginal significance at any point is measured by the slope (dy/dx) of the indifference curve at that point.

Let us now consider how a consumer would maximise his satisfactions given (a) a certain sum of money, and (b) the wish to buy pears and to retain part of the money to purchase other goods. (We shall ignore some assumptions which need to be made - one of which is that of 'rational man').

The first figure shows the indifference map of our consumer each curve representing the various combinations of pears and money which provide constant utility for him. The second figure illustrates his purchasing power in terms of pears, i.e. with a fixed sum of money OA he can purchase OB pounds of pears if he spends it all on pears. The price of pears is therefore OA/OB (£). The line AB represents the opportunities open to our consumer at given market prices for pears and at given income; whereas his indifference curves show his tastes independent of market conditions, i.e. his preferences do not depend on prices.



The third figure superimposes line AB (price-opportunity line) on the indifference map. Assuming the consumer wishes to obtain the greatest satisfaction from his outlay, he will attempt to reach the highest indifference curve. But his lack of money prevents him from reaching a higher curve than 3. Hence, at point P on indifference curve 3 he reaches an optimum equilibrium position where he maximises his satisfactions. This is because at any point on the line AB above P the marginal significance of pears in terms of money is greater than the money price of pears per pound. The consumer therefore increases his satisfactions by giving up money to buy pears.

(1.1.9) At points below P on the line AB the marginal significance to him of pears in terms of money is now less than the price of pears and he would therefore not buy pears under those conditions. At P the consumer's marginal significance of pears in terms of money is equal to the price of pears and he is in equilibrium. The slope of the price-opportunity line AB and the slope of the indifference curve 3 are the same.

Further development of the indifference curve approach as a system for analysing the mechanisms of choice becomes extremely technical. Edwards has mentioned how this procedure has firmly established itself as the structure of the theory of riskless choice. Mathematicians have found it an aggreeable topic for their mental gymnastics. He commented that psychologists would be likely to view indifference curves occurring as indifference regions, or as probability distributions of choice around a central locus.

71 Edwards,W.(1954) op.cit., p.25.

72 Lewin,K.(1946) Behavior and development as a function of the total situation. In: D.Cartwright (ed.) Field theory in social science.London: Tavistock Publications (1963). New York: Harper and Row (1951).p.261.

73 Lewin,K.(1946) loc.cit., p.263.

74 Cohen,J.and I.Christensen (1970) op.cit., p.80.

75 The idea of projected journeys having gradients seems to have passed into the English language a long time ago:

> "...In the coaching world the road of a proprietor's choice was not his road but his 'ground'. .....The ground had two 'sides', one running one way and one the other. The coach roads were loosely divided into three parts, the upper ground nearest a coach's home town, the lower ground farthest away, and the middle ground between the two. Thus coaches ran 'up' to London and 'down' to the country as trains, motor cars and aircraft do today."
>
> Bovill,E.W.(1959) The England of Nimrod and Surtees 1815-1854. Oxford University Press.p.129.

(1.0) SURVEY
(1.2) METHODOLOGY

(1.2.1) The methodology of studies in human territoriality.

76 Hall,E.T.(1966) The hidden dimension. op.cit.,

77 Sommer,R.(1969) Personal space. op.cit.,

(1.2.2) The methodology of studies in interpersonal relationships.

78 Warr and Knapper discuss the question as to whether person perception is intrinsically different from object perception. They present six arguments against the idea that the processes are essentially the same, but demonstrate that none of these is sufficiently strong to invalidate their own working hypothesis of essential similarity.

Warr,P.B.and Knapper,C.(1968) The perception of people and events. London: Wiley. pp.42-46.

79 McBride,G., King,M.G. and J.W.James (1965) Social proximity effects on GSR in adult humans. Journal of Psychology. 61:153-7.

80 Cohen,J.(1968) op.cit.,pp.48-9.

81 Argyle,M.(1967) The psychology of interpersonal relations. op.cit., pp.105-116.

Kendon,A.(1966) Gaze direction as a signal in social performance. Bulletin of the British Psychological Society. 18: no.59,12A.

82 Exline,R.V., Thibaut,J., Brannon,C. and P.Gumpert (1961) Visual interaction in relation to Machiavellianism and an unethical act. American Psychologist. vol.16,p.396.

83 Hess,E.H.(1965) Attitude and pupil size.Scientific American. vol.212, p.46.

(1.2.3) The methodology of body-image studies.

84 Fisher,S. and S.E.Cleveland (1965) Personality, body perception and body-image boundary. In: S.Wapner and H.Werner (eds.) The body percept. New York: Random House. p.50.

85 Fisher,S. and S.E.Cleveland (1968) Body image and personality. op.cit.,

(1.2.3)

86 Lewinian theory attributes human striving to an inner drive which is precipitated by a condition of tension arising within the individual. Lewin conceived tensions as set up by internal need which may be transient or longer lasting. Different needs give rise to different tension systems which may interact or remain segregated. Tension systems tend to discharge in action whenever possible, but this depends on the total energy possessed by a needs-tension system and the activation level of the individual.

87 Freud held that man is ultimately impelled by the 'libido', i.e. the energy of the ego.

Davy's description is more succinct than many:

> "In infancy, he (Freud) proposed, the first source of satisfaction is the breast, later moving on to the bowel functions and the genitals. But real life, said Freud, frustrates the infant's libido by removing the child from the breast, making rules about bowel control, and putting restrictions on sexual behaviour. Freud saw these early conflicts between the libido and external authority if unresolved, as the prime source of later neurosis."
>
> Davy,J. Exploring human nature. op.cit.,

88 Fisher,S.and S.E.Cleveland (1968) op.cit., p.307.

Fisher,S.and S.E.Cleveland (1957) An approach to physiological reactivity in terms of body image schema. Psych.Rev., 64:26-37.

89 Vernon,M.D.(1969) Human motivation.op.cit.,p.152.

90 The chief executive in committee:

"(The leader) does not scrabble, twitch, fidget or falter. These are essentially the reactions of subordinates. If the leader performs them there is something seriously wrong with him in his role as the dominant member of the group". (Concerning "displacement activities").
Morris,D.(1969) The human zoo. op.cit., p.45.

91 Vernon,M.D.(1970) Perception through experience. London: Methuen. p.236.

92 Witkin,H.A.(et al.,)(1962) Psychological differentiation. New York: Wiley.

Witkin,H.A.,Lewis,H.B.,Hertzman,M.,Machover,K., Meissner,P.B.,and Wapner,S.(1954) Personality through perception.New York: Harper.

(1.2.3)

93 Maloney,M.P.and L.E.Payne (1969) Validity of the Draw-a-Person Test as a measure of the body image. Percept.,Motor Skills. 29:119-122.

The nature of the Figure-Drawing Test has been explained thus by Witkin:

"Response to the directive, 'Draw a Person'....as with all other projective techniques.....forces a spontaneous flow of associations, derived from a variety of sources, including many of which the person is not aware.

"...each of us carries around with him some more or less crystallized view of a "person" that, in fact or in fantasy, represents himself and is thus the subtle product of experiences with himself and with others. Thus the figure that is drawn on paper may be regarded as a rough representation of the subject's image of himself with relation to his environment. He projects himself by means of particular kinds of lines on a certain part of the page, in characteristic dimensions, proportions, and perspective, and with a peculiar configuration, all expressive of his temperament and self-view. The nature and distribution of his personal conflicts are represented in the organisation of the pictured body, its clothing, accessories, and the symbols expressed; and a systematic analysis of these features based upon the functional values of the body, helps establish the personality pattern of the person drawing .....(It) differs from other projective tests, such as the Rorschach and Thermatic Apperception Test, in that it focuses on body expression and on graphomotor projection of the self....."

Witkin,H.A.,(et al.,)(1954) Personality through perception. op.cit., pp.235-6.

A technique for rating Figure-Drawings to the degree of field dependence has been applied by K.Machover in the above work. According to Fisher and Cleveland, her study is "one of the most clear-cut and definitive in the whole body-image literature" (Fisher,S. and S.E.Cleveland (1968) op.cit.,p.34.)

94 Cohen,J.and I.Christensen (1970) op.cit., p.96.

95 They continue:
"It makes it possible for him to feel that he is not open and vulnerable to everything which occurs in his vicinity and that there is some dependable definiteness about his immediate behavioral space.This facilitates his viewing himself as existing in an environment in which the safety factor is fairly constant. He need not radically revise his concept of his vulnerability as he encounters new situations which vary in their degree of threat. The body-image

(1.2.3) boundary probably does not reflect the state of immediate situations, but it is probably a fairly stable average of the past experiences out of which internalized systems were originally developed".

Fisher,S.and S.E.Cleveland (1968) op.cit., p.354. (extract from conclusion).

96 ibid. pp.58-64.

97 Bartlett,Sir Frederick (1932) Remembering. Cambridge University Press. pp.59-61; 109-112.

See also:
Richardson,A.(1969) Mental imagery. London: Routledge & Kegan Paul. p.132.

98 Fisher,S.and S.E.Cleveland (1965) op.cit., p.65.

99 Wapner,S.and H.Werner (1965) An experimental approach to body perception from the organismic-developmental point of view. In: S.Wapner and H.Werner (eds.) The body percept. op.cit.,

Werner, H., Wapner,S.,and P.E.Comalli (1957) Effect of boundary of perception of head size. Perceptual and Motor Skills. 7:69-71.

McFarland,J.H., Wapner,S.and H.Werner (1962) The relation between perceived location of objects and perceived location of one's own body. Perceptual and Motor Skills. 15:331-342.

100 Dillon,D.J.(1962) Measurement of perceived body size. Perceptual and Motor Skills. 14:191-6.

101 Goffman,E.(1966) Behavior in public places.New York: Doubleday.

Banton,M.(1965) Roles. London: Tavistock Publications.

(1.0) SURVEY

(1.3) STATEMENT OF EXPERIMENT

102 Vernon,M.D.(1970) Perception through experience. London: Methuen. p.2.

103 Gibson,J.J.(1950) The perception of the visual world. Boston: Houghton Mifflin.

(2.0)TERRITORIALITY: THE ACQUISITION, USE AND DEFENCE OF SPACE BY ANIMALS AND MAN

(2.0.1)Definitions.

104 Carpenter,C.R.(1958) Territoriality: a review of concepts and problems. In: Behavior and evolution. A.Roe & G.G.Simpson (eds.) New Haven: Yale University Press. p.228.

105 Although as Carpenter stated there is no brief description which could adequately define the multiplicity of factors contained in the concept of territory, the definition "any defended area" by Noble (1939) has distinguished support (e.g.Hinde and Tinbergen). "It emphasises that territory has both psychological and topographical implications .... leaving its function to be described in relation to particular species". (Huxley's and Fisher's foreword to Howard's "Territory in Bird Life". p.15).

Emlen does not agree that territory has special significance for animals as an object to be defended.

Emlen,J.T.(1957) Defended area? - a critique of the territorial concept and of conventional thinking. Ibis 99: 352.

106 "Every kind of mammal may be said to have a home range, stationary or shifting. Only those that protect some part of the home range, by fighting or ag aggressive gestures, from others of their kind, during some phase of their lives, may be said to have territories." (p.351).

Burt,W.H.(1943) Territoriality and home range concepts as applied to mammals. Journal of Mammalogy, 24: 346-352.

"An animal's range is the area over which he customarily travels in search of food, whereas his territory is any portion of the range he defends."

Washburn,S.L.& I.DeVore(1962) Social behavior of baboons and early man. In: Social life of early man. S.L.Washburn (ed.) London: Methuen. (p.93,note2).

More recently, home range systems have been discussed in:
Play, exploration and territory in mammals. P.A.Jewell & C.Loizos (eds.) Symp.zool.Soc.Lond.18. London: Academic Press (1966).

(2.0.2) The study of territoriality.

107 Huxley's and Fisher's foreword to Howard's "Territory in bird life". (p.20).

Howard,H.E.(1920) Territory in bird life. London: John Murray.(2nd.edition. London: Collins,1948).

(2.1). THE VALUE AND FUNCTIONS OF TERRITORY

108 Hinde,R.A.(1956) The biological significance of the territories of birds. Ibis 98:340-369; with papers on individual species by 18 others ibid: 370-530.

(2.1.1) The dispersion theory.

109 Wynne-Edwards,V.C.(1962) Animal dispersion in relation to social behaviour.Edinburgh:Oliver & Boyd.

(2.1.2) The dispersive effect of territory.

110 Hediger,H.P.(1955) Studies of the psychology and behaviour of captive animals in zoos and circuses. London: Butterworth.

111 "If a territory falls vacant it is at once seized by a member of the same species, which till then has had to make do with a less favourable territory. This is true for the trout as for the tiger".

Hediger,H.P.(1950) Wild animals in captivity. London: Butterworth. (p.10).

112 Not all ethologists are convinced of this. See:

Crook,J.H.(1968) The nature of territorial aggression. In: Man and aggression. M.F.Ashley Montagu(ed.) Oxford University Press. (p.165-6).

(2.2) SYSTEMS OF ANIMAL LAND TENURE

113 Nice,Margaret M.(1941) The role of territory in bird life. Amer.Midl.Nat. 26:441-487.

(2.2)

114 Examples of the size of territories abstracted from those collated by Hediger (1950) op.cit.,

Species	Locality	Size	Species	Locality	Size
Howler monkey	Panama	300 acres	White-tailed eagle	-	Aver. 2-miles
Cougar	California	20 sq. miles	Mute swan	-	Approx. 1/2 mile
Lion	Kruger National Park	13 sq. miles	House wren	-	1-acre
Giant Panda	Chinese Tibet	1 sq. mile	Lizard	Cuba	37 sq. yards

115 Based on:
(2.2.1) Wynne-Edwards,V.C.(1962) op.cit., pp.98-100.

116 Haggett,P.(1965) Locational analysis in human geography. London: Edward Arnold. pp.48-55.

117 Isard,W.(1956) Location and space economy. Cambridge, Massachusetts: The MIT Press. pp.43-50. (p.48).

(2.3) THE BOUNDARIES OF TERRITORIAL SPACE

(2.3.1) Animal boundaries.

118 Kleiman, Devra (1966) Scent marking in the Canidae. In: P.A.Jewell and C.Loizos (eds.) Play, exploration and territory in mammals. Symp.zool.Soc.Lond.18. op.cit.,

119 Hediger wrote:
"...in zoo life we are constantly up against this unpleasant problem; monkey cages are perpetually dirty, and particularly among anthropoids, we encounter most repulsive habits: they play with and throw excreta, frequently eating it in appreciable quantities."

Hediger,H.P.(1962) The evolution of territorial behaviour. In: Social life of early man. op.cit., p.40.

120 He refers to his paper:

Hediger,H.P.(1956) Instinkt und Territorium. In: L'instinct dans le comportement des animaux et l'homme. Paris: Fondation Singer-Polignac. (Not seen).

121 Lorenz observed that:

"...in many species the song indicates how strong and possibly how old the singer is, in other words, how much the listener has to fear him".

Lorenz,K.Z.(1966) On aggression. London: Methuen.p.126.

(2.3.2) Human boundaries.

122 Sommer,R.and F.D.Becker (unpublished study) Territorial defence and the good neighbour.

Sommer,R.(1969) Personal Space. Englewood Cliffs, New Jersey: Prentice-Hall. (p.53)

(2.4) THE BEHAVIOUR OF TERRITORIAL DEFENCE

123 Collias,N.E.(1944) Aggressive behaviour among vertebrate animals. Physiol.Zool. 17:83-123.(p.98)

124 Tinbergen,N.(1957) The functions of territory. Bird Study 4:14-27.

(2.4.1) Fighting between conspecifics.

125 Tinbergen,N.(1953) Social behaviour in animals. London: Methuen. (p.62)

126 Lorenz, the "father of ethology", is famous for the sparkle of his writing in popular works which are characterised by the closeness of the parallels drawn between animal and human behavioural traits. At the same time, as a scientist he is well aware of the dangers of anthropomorphism. His vituosity as a writer and his scientific detachment enables him to skirt this danger (1), but the gentleness of his animal descriptions can sometimes make other ethologists uneasy (2).

In regard to the inhibitive mechanisms which prevent an animal from attacking a conspecific, he writes:

(1) ...the taboo(on hurting conspecifics) effects a motivation which is analogous to true morality in function only, and which in all other respects is as far beneath it as the acquiring of conditioned response is beheath conceptual, rational thought; in other words, as far as the animal is beneath humanity. However, nobody with a real appreciation of the phenomena under discussion can fail to have an ever-recurring sense of admiration for those physiological mechanisms which enforce, in animals, selfless behaviour aimed towards the good of the community, and which work in the same way as the moral law in human beings. (p.94)

In the same book (On aggression), Lorenz describes the effect of grief among his beloved geese.

(2) ...my dear old greylag, Ada, several times a widow, was particularly easy to recognise because of the grief-marked expression in her eyes. (p.180)

Lorenz,K.Z.(1966) op.cit.,

(2.4.1)

127 Hinde,R.A.(1962) The relevance of animal studies to human neurotic disorders. In: Aspects of psychiatric research. D.Richter,J.M.Tanner, Lord Taylor and O.L.Zangwill (eds.) Oxford University Press. (p.251)

128 Eibl-Eibesfeldt,I.(1961) The fighting behaviour of animals. Scientific American,470. December. pp.1-8.

(2.4.2)Threat and appeasement.

129 Lorenz,K.Z.(1966) op.cit., (pp.113-6)

(2.4.3)Threat and displacement activities.

130 Tinbergen,N.(1953) op.cit.,(pp.5-9)

131 Armstrong,E.A.(1950) The nature and function of displacement activities. Symp.Soc.exp.Biol. 4: 361-84.

132 For a general account of displacement activities:

Cloudsley-Thompson,J.L.(1965) Animal conflict and adaptation.London:Foulis & Co. (PP.101-109)

(2.4.4)The similarities of animal and human behaviour.

133 Morris,D.(1967) The naked ape. London:Jonathan Cape. Also: Corgi Books, Transworld Publishers. (p.140)

134 An example is provided by the Sino-Russion territorial dispute of 1968-69.

> Squads of Chinese Red Guards bared their bottoms at Russia for hours on end in a series of anti-Russian demonstrations on the Chinese bank of the border River Ussuri, a Russion journal said yesterday. The Russians retaliated by lining their banks with portraits of Chinese leader Mao Tse-Tung, the weekly satirical magazine 'Krokodil' said. When the Red Guards saw the portraits of their leader they quickly pulled up their trousers for fear of being accused of insulting him, the journal added.

"Chinese plumb bottom depths of insult". The Birmingham Post. 11th April,1969.

135 Lorenz,K.Z.(1966) op.cit., (p.232)

(2.4.3)

136 Clothing helps to achieve this effect, e.g. the extra height property of the policemen's helmet and the Guardsman's bearskin.

137 Morris,D.(1967) op.cit.,(p.144)

138 Sommer,R.(1969) op.cit., Uncited experiment(p.36).

139 In the pathological state of submissiveness (Catalepsy: Fleibilitas cerea) men and animals will not only assume immobility, but they will permit the position of their body parts to be arranged by others and will maintain the posture in which they have been placed.

140 For example, there are four ways of renouncing acquaintanceship:

1.The cut direct: to look someone in the face and pretend not to know him.

2.The cut indirect:to look the other way and pretend not to see him.

3.The cut sublime: to look up in the air as if admiring the clouds until he has passed.

4.The cut infernal: to stoop and adjust your shoe lace until he has passed.

Brewer's dictionary of phrase and fable. London: Cassell.

141 Lorenz,K.Z.(1966) op.cit., (p.115)

142 An interesting development of human grooming practices is that of pseudo-grooming. This is undertaken by TV interviewers who wish to discredit the person they are interviewing or to put him ill at ease.
It involves flicking imaginary dust-specks or hairs from the clothing of their victim during filming of the interview to convey the impression to viewers that he is unkempt. Untidiness is presumably associated with radical views in the popular mind.

(American commentator to Alan Whicker in BBC TV talk,1969).

143 Lorenz,K.Z.(1966) loc.cit., (p.115)

144 Morris,D.(1967) op.cit., (p.149)

(2.5) ANIMAL DEFENCE OF SUBJECTIVE SPACE

145 Crook,J.H.(1968) op.cit., (p.147)

(2.5.1) The struggle for status.

146 Schelderup-Ebbe,Th.(1922) Zur Socialpsychologie der Vogel. J.Psychol. 88:224. (Not seen)

147 Lorenz,K.Z.(1966) op.cit., (p.36) and Lorenz,K.Z.(1952) King Solomon's Ring. London: Methuen. Chapter 11.

148 Washburn,S.L.and I.DeVore(1961) The social life baboons. Scientific American. June.614:1-11.

149 Peck-order among men has been described by P.G.Wodehouse:

> It is not easy to explain to the lay mind the extremely intricate ramifications of the personnel of a Hollywood motion-picture organisation. Putting it as briefly as possible, a Nodder is something like a Yes-Man, only lower in the social scale. A Yes-Man's duty is to attend conferences and say 'Yes'. A Nodder's, as the name implies is to nod. The chief executive throws out some statement of opinion, and looks about him expectantly. This is the cue for the senior Yes-Man to say Yes. He is followed, in order of precedence, by the second Yes-Man - or Vice-Yesser, as he is sometimes called - and the junior Yes-Man. Only when all the Yes-Men have yessed, do the Nodders begin to function. They nod.

"The Nodder" in P.G.Wodehouse. Blandings Castle. London: Herbert Jenkins. n.d. (p.222)

150 Lorenz,K.Z.(1966) op.cit., (p.36)

151 Gluckman,M.(1956) Custom and Conflict in Africa. Oxford: Basil Blackwell.

Gluckman has described how by adaptively ritualising their behaviour people with strong mutual animosities avoid the harmful consequences to their shared society which their feelings would otherwise arouse. He explained how this process works in the feud, in the colour bar, in hostility to authority, and elsewhere. In other words, mutual animosity is a cohesive force binding the members of a society together,i.e. the dear enemy or rival friend situation.

(2.5.1)

Gluckman's thesis has similarities to Robert Ardrey's "castle and border" theory (1967). This latter theory of a "noyau" society held together by inward antagonism is proposed as an explanation for the puzzling behaviour whereby some species of monkeys form and defend territories and others do not. Ardrey has suggested that those monkeys who operate territorial defence do so to enjoy the stimulation of border quarrels.
Ethologists do not accept this proposal as serious. (E.g. Crook,J.H.1968. op.cit.,p.144).

(2.5.2)The consequences of crowding.

152 Calhoun,J.B.(1962) A behavioral sink. In: Roots of behavior. Eugene L.Bliss (ed.). New York: Harper & Bros. (pp.295-315).

Calhoun,J.B(1962) Population density and social pathology. Scientific American. February. 206: 139-146.

153 Barnett,S.A.(1963) A study in behaviour.London: Methuen.
Barnett,S.A.(1958) Physiological effects of "social stress" in wild rats.1.Adrenal cortex. J.Psychosomatic.Res.,3:1-11.

Beach,F.A.(1948) Hormones and behavior. New York: Hoeber.

154 The endocrines are internal glands that secrete substances called hormones into the bloodstream. There are many internal processes, such as sexual functions, internal reactions to stress, and water balance, which are regulated by hormonal action. Some endocrines,e.g. the adrenals and the pituitary, are controlled by the CNS; other endocrines are themselves controlled by the pituitary which is located near the base of the brain.

155 Cloudsley-Thompson,J.L.(1965) Animal conflict and adaptation.London: Foulis & Co. (p.98)

(2.5.3)Encounters between different species.

156 Cloudsley-Thompson,J.L.(1965) ibid.(p.107)

157 When Young Albert poked the lion with his horse's head handle it was probably not the blow which

(2.5.3)

upset the lion but the infringement of its critical distance. (Albert and the Lion - a monologue made famous by Stanley Holloway on the Music Halls).

Horse-breakers, big-game hunters, and bull-fighters are doubtless also familiar with the critical distances of the animal species with which they are associated. Fighting bulls show site attachment to "la querencia" (the wanted place) when in the arena.

(2.5.4) Encounters between conspecifics.

158 Man is also highly responsive to the releasing stimuli and intention movements of his own species. For example, it is commonplace in a British cinema to observe the synchronous lighting of cigarettes in imitation of a film character.
Again, the intention movements of someone preparing to leave a train on approach to a terminus can precipitate his fellow passengers into similar preparations however premature these may be. This contagious reaction among animals has been described as "social facilitation". The imitative movement is "the following reaction".

159 Hediger has used the term "social distance" to describe the "maximum distance that individuals of one society will move from one another". (1962) op.cit., p.54.
In English, however, "social distance" already connotes divisive rather than cohesive properties. His use of the phrase which is frequently adopted by social anthropologists does not appear to have gained acceptance among native English speaking ethologists who prefer to use "social tendency".
Ardrey (1970) has suggested "animal zenophobia" to describe the divisive social force between conspecifics. The social contract. p.235.

160 Crook,J.H.(1961) The basis of flock organisation in birds. In: W.H.Thorpe and O.Zangwill (eds.) Current problems in animal behaviour. Cambridge University Press.

161 Fisher and Cleveland have remarked with regard to the body-image:

"...One is led to wonder whether the individual's perception of his boundary may not prove to be an unusually sensitive index of modification in his functioning. Of course, the question arises whether boundary fluctuations represent initiating forces in change processes or whether they are subsidiary effects. Available information does not at this point permit a meaningful answer".

Fisher,S.and S.E.Cleveland (1965) Personality and body perception. In: S.Wapner & H.Werner (eds.) The body percept. New York: Random House. p.65.

(2.5.4)

162 Crook,J.H.(1968) In:Man and aggression.op.cit.,p.148.

163 Sommer,R.(1969) Personal space. op.cit., p.37.

164 Marler,P.(1956) Studies of fighting in Chaffinches, (3) Proximity as a cause of aggression. Brit.J. Anim.Behav., 5:23-30.

(2.6) THE CONTROL MECHANISMS OF TERRITORIAL BEHAVIOUR

165 Vernon writes:
"...instincts differ from reflexes, which are less variable, less adaptable and also more persistent. Moreover, reflexes are aroused by simple sensory stimuli, whereas instincts depend on complex environmental and internal factors.

Vernon,M.D.(1969) Human motivation. Cambridge University Press. pp.4-5.

Hebb writes:
...Consider Lashley's (1938) useful distinction between reflex and instinct. A reflex may be defined as innately determined behavior that is controlled by stimulation of a specific group of receptors and takes the form of a predictable set of muscular contractions. Instinctive behavior, on the other hand, is more than a complication of reflexes, although of course it involves reflex elements. It is not always controlled by a specific stimulation, and may in fact be aroused by a perceptual lack ("reaction to deficit" Lashley 1938; "vacuum activity" Lorenz cited by Tinbergen,1942). Instinctive behavior does not consist of a predetermined sequence of muscular contractions, and yet it has a constant and predictable end result. The spider of a given species will spin a web highly specific in design, though the movements necessary to produce it vary with the distance to the objects to which it is attached...."

Hebb,D.O.(1949) Organisation of behavior. New York: John Wiley & Sons. p.166.

(2.6.1)Psychological mechanisms.

166 This description of classical motivation theory follows the explanation of both Vernon and Crook.

Vernon,M.D.(1969) Human motivation. op.cit.,p.6.
Crook,J.H.(1968)In:Man and aggression.op.cit.,p.151.

167 Some bird species have evolved "recognition ceremonies". When nests are close spaced a returning bird identifies itself by an introductory display for otherwise it would be attacked by its own young.

168 Watson,A.J.(1961) The place of reinforcement in the explanation of behaviour. In: Current problems in animal behavior. op.cit., pp.273-301.

(2.6.1) Watson expounds the weaknesses of "need-primacy" or "drive-reduction" theory which attributes behaviour to the four or more primary drives which are aimed to satisfy physiological deficiencies such as hunger, thirst, elimination and sexual appetite. He points out that play, exploration, manipulation and avoidance seem unrelated to the visceral needs that drive theorists suggest as basic.

169 Cratty,B.J.(1967) Movement behavior and motor learning. (2nd.edition) Philadelphia: Lea & Febiger:p.250.

Cratty writes:
"Tolman was one of the first "field" theorists. He used the term "behavior space" (similar to Lewinian "life space") to represent the individual's immediate environment.
Contradicting the findings of S-R behaviorists who felt that learning implied the acquisition of simple responses, Tolman postulated that organisms become familiar with places, that mice, for example, form "cognitive maps" of the maze patterns (in which they are placed). The meanings attached to a situation were not assumed to be only spatial, since it was also proposed that time factors and 'logical' considerations aid in performing the task in hand.
Behavior is considered to be goal-directed and concerned with avoiding or approaching something in the environment. The concept of confirmation replaces reinforcement in Tolmanian theory.
An individual is assumed to repeat an act as its consequences become known and predictable. The term carthexes (negative or positive) (similar to Lewinian "valences") was coined to explain the relative attraction or repulsion individuals attach to objects and situations." (Cratty's emphasis.)
(Tolman,E.C. Purposive behavior in animals and men. Century Psychology Series. New York: The Century Co. 1932).

(2.6.2) Physiological mechanisms.

170 McCleary,R.A.and R.Y.Moore (1965) Subcortical mechanisms of behavior. New York: Basic Books.pp.11-12.

The authors point out that:

"...Nowadays it is understood that if a lesion in some particular part of the brain leads to some behavioral deficit, this fact means only that the damaged brain tissue is part of some neural circuit (potentially involving structures at many levels of the brain) that needs to be intact for the normal function of the ability under study.
Such a conclusion is quite different from saying

(2.6.2)

that the brain area in question must have controlled the ability or have been responsible for it or, even worse, that the ability must have been localised exclusively in that particular part of the brain - as if there were many faculties each having its own special seat in the brain, in the way that phrenologists believed a century and a half ago and psychophysiologists considered reasonable earlier in this century.....

The same kind of caution is necessary in drawing anatomical conclusions from behavioral experiments that involve electrical or chemical stimulation of particular brain structures. Such artificial activity initiates changes that can spread along nerve pathways and the critical effect, so far as some particular sample of behavior is concerned, could well lie in a neural structure quite remote from the location of the stimulating electrode or stimulating chemical. The same discretion is also necessary when one attempts to correlate recorded electrical activity in a particular brain structure with some type of observed behavior. It is always possible that the recorded activity is only a byproduct of more crucial electrical events elsewhere in the brain.

171 von Holst,E.and U.von Saint Paul(1962) Electrically controlled behavior. Scientific American,March.464: 1-11.

172 Collias,N.E.(1944) op.cit., (pp.104-5)

173 Cross,B.A.(1964) The hypothalamus in mammalian homeostasis. In: Symp.Soc.exp.Biol.18:157-193. Cambridge University Press.

(2.7)THE VALIDITY OF HUMAN AND ANIMAL BEHAVIOURAL ANALOGIES

174 Montagu,Ashley M.F.(1968)(ed.) Man and aggression. Oxford University Press. (Introduction & pp.3-17)

175 Lewis,J.and B.Towers (1969) Naked ape or homo sapiens ? London: Garnstone Press.

176 Lorenz,K.Z.(1966) On aggression. op.cit.,
Morris,D. (1967) The naked ape. op.cit.,
Morris,D. (1969) The human zoo.London:Jonathan Cape.
Storr,A. (1968) Human aggression.London: Allen Lane, The Penguin Press.

(2.7) 177 Ardrey,R.(1967) The territorial imperative. London: Collins.

178 Singer,C.(1959) A short history of scientific ideas. Oxford University Press. pp.132-136.

179 Aspects of human territoriality are described by:

Hall,E.T.(1969) The hidden dimension. London: Bodley Head.

Sommer,R.(1969) Personal space. op.cit.,

180 Boulding,K.E.(1968) Am I a man or a mouse - or both ? In: Montagu,M.F.A. (ed.) Man and aggression.op.cit.,p.85.

181 Papez,J.W.(1937) A proposed mechanism of emotion. Archives of Neurology and Psychiatry. 38: 725-743.

182 P.D.MacClean, quoted by:

Koestler,A. (1969) The urge to self-destruction. The Observer. 28 September 1969.
From an article based on Koestler's address to the 14th Nobel Symposium, Summer 1969, Stockholm, entitled: 'The place of value in a world of facts'.

183 Lewis,J.and B.Towers (1969) Naked ape or homo sapiens ? London: Garnstone Press. p.101.

184 Darwin postulated a biological utility for emotional expression which still has its supporters, e.g. Lorenz and Morris, who have seen resemblances between human and animal threat and appeasement signals (2.4.4).
Cannon investigated the physiological changes which accompany emotions and found that emotion in animals was overtly displayed even after severance of neural connections. He believed that emotional expression was mediated principally by the hypothalamus.
Later workers have provided evidence that the motor expressions of emotion seem to depend on the hypothalamus and the limbic area, but that evaluation of the stimulus arousing emotion also involves the cortex and reticular formation.

Vernon,M.D.(1969) op.cit., (For citations of recent research in this area.)

Darwin,C.(1872) The expressions of emotions in man and animals. London: Murray.

Cannon,W.B.(1929) Bodily changes in pain,hunger,fear and rage. New York: Appleton-Century-Crofts.

185 Boulding,K.E.(1968) In:Man and aggression.op.cit., p.88.
"...Culture is a body of coded information which is passed

(2.7)

on from generation to generation, suffering mutation and selection, just as the coded information in the gene is passed on.....Consequently, the concept of a cultural instinct is by no means absurd, even though the genes of a cultural instinct are much less stable and much more subject to mutation than the biological genes."

186 Scott,J.P.(1968) That old-time aggression. In: Montagu, M.F.A. (ed.) Man and aggression.op.cit., p.57.

187 Koestler,A.(1969) loc.cit.,

(3.0) HUMAN APPROACH AND AVOIDANCE BEHAVIOUR

(3.1) THE ENERGY AND COURSE OF BEHAVIOUR

(3.1.1) Preliminary concepts.

188 Vernon notes that : "Duffy in particular has been concerned to demonstrate the manner in which all motivated and emotional behaviour is characterised, not only in its direction - in hunger, sex, fear, etc., - but also by its degree of activation in terms of energy mobilisation, forcefulness, excitement, and so on".

Vernon,M.D.(1969) Human motivation. Cambridge University Press. pp.85-6.

Hinde examines Duffy's concept of "level of activation" and cites experimental work on the function of the reticular formation.

Hinde,R.A.(1966) Animal behaviour: a synthesis of ethology and comparative psychology. New York: McGraw-Hill. pp.154-165.

Duffy,E.(1962) Activation and behavior. New York: John Wiley & Sons.

The Papez circuit (Figure 7):

Papez has suggested that activity in this circuit might provide the neural basis of emotional experience.

McCleary,R.A.and R.Y.Moore (1965) Subcortical mechanisms of behavior. Basic topics in physiological psychology series. New York: Basic Books Inc., p.33.

Papez,J.W.(1937) A proposed mechanism of emotion. Archives of Neurology and Psychiatry 38:725-743.

189 Typical changes in alpha patterns in cortical activity are illustrated in many primary textbooks. For example:

Butter,C.M.(1968) Neuropsychology: the study of brain and behavior. Basic concepts in psychology series. Belmont, California: Brooks/Cole Publishing Co.,p.119.

190 Barratt,P.E.(1956) The use of the EEG in the study of imagery. Brit.J.Psychol. vol.47 pt.2: 101-114.

Fisher,S. and S.E.Cleveland (1968) Body image and personality. op.cit., pp.338-341.

191 McBride,G., King,M.G. and J.W.James (1965) Social proximity effects on galvanic skin response in adult humans. J.Psychol. 61:153-157.

(3.1.1)

192 Anecdotal reference: Time Magazine. 6 June 1969,p.49. Investigation at the U.S.Medical Center for Federal Prisoners in Springfield, Mass.,

Kinzel,A.F.(1970) Body-buffer zones in violent prisoners. Amer.Journ.Psychiatry.

193 Lacey,J.I.et al.,(1953) Autonomic response specificity. Psychosom. Med. 15,8.

194 Solomon,P.et al.,(ed.)(1961) Sensory deprivation. Harvard University Press.

195 Lacey,J.I.and B.O.Lacey (1958) Verification and extension of the principle of autonomic response-stereotypy. Amer.J.Psychol. 71,50.

196 Cratty,B.J.(1967) Movement behavior and motor learning. Second edition. Philadelphia: Lea & Febiger.p.161.

197 A distinction may be drawn between "psychological stress" and "physiological stress". The former is often associated with frustration and motivational conflict.
Seyle has proposed a physiological basis for identification of stress; it involves evidence of glandular and visceral activity and changes in blood chemistry.

Seyle,H.(1956) The stress of life.New York: McGraw-Hill.

198 Fisher,S. and S.E.Cleveland (1968) op.cit.,p.311.

199 The nature, measurement, and effects of stress, tension, and anxiety on performance is discussed by:

Cratty,B.J.(1967) op.cit., p.160-183.

Grossner,G.H.,Wechsler,H. and M.Greenblatt (eds.) (1965) The threat of impending disaster: contributions to the psychology of stress.MIT Press.

200 Including that of confinement under conditions of sensory deprivation. See:

Vernon,J.(1965) Inside the black room. Harmondsworth: Pelican Books.

201 The relationship between muscular tension and neurological and physiological measures has been examined by:

(3.1.1)

Pinneo,L.R.(19610 The effects of induced muscular tension during tracking on level of activation and on performance. J.Exp.Psych. 62:523-531.

202 Vernon,M.D.(1969) op.cit., p.55.

Another point of view is put by Metzner:

"One criterion which has been suggested is that 'fear' is of an objective danger, whereas 'anxiety' is of an unreal or irrational danger, which 'does not really exist out there'. This way of drawing the distinction contains an implicit value judgement: for example, why should the anxiety provoked by feelings, which if expressed would lead to punishment by the superego, be regarded as fear of a less 'real' danger than, for example, fear of a snake?"

Metzner,R.(1961) Learning theory and the therapy of neurosis. In: The British Journal of Psychology. Monograph Supplement 32-35. 1961-62. Cambridge University Press.

203 Malmo,R.B. and J.F.Davis (1957) Anxiety and behavioral arousal. Psych.Rev. 64:276-287.

Meyer,D.R.and M.E.Noble (1958) Summation of manifest anxiety and muscular tension. J.Exp.Psych. 55: 599-602.

204 Jordan,N.(1968) Themes in speculative psychology. London: Tavistock Publications. pp.134-8.

(3.1.2)Motivation and drive-reduction.

205 Similar points are made by:
Jordan,N.(1968) op.cit., p.111.

206 Deutsch has written:

"There are....cases in which the animal solves a novel problem without trial and error, though it draws upon information about the situation acquired on previous occasions.....These cases are called instances of latent learning and reasoning.
We talk of reasoning when an animal has to combine two sets of information in some way in order to find a solution. All the information which the animal must utilise in order to solve the problem is never presented together. The animal is then set a goal which it can reach without error only by "putting together the various pieces of knowledge". In latent learning experiments the situation with which the animal is confronted is similar. The difference lies in the fact that all the evidence

(3.1.2)

"which the animal will need to use....is presented together, sometimes in the order in which it will occur in the test and sometimes in an order determined solely by the random exploration of the animal in the maze and the random selection of points of entry and exit by the experimenter."

Deutsch,J.A.(1960) The structural basis of behaviour. Cambridge University Press. p.101.

207 Anthony Storr discusses the "death wish" as viewed by Freud and Melanie Klein:

Storr,A.(1968) Human aggression. London: Allen Lane, The Penguin Press. pp.1-9.

208 Learning theory has received immense attention. It is concerned with the roles of memory, practice, the influence of rewards and punishments, learning limits, and the cues which facilitate learning. Various theories are reviewed in:

Hilgard,E.R.(1948) Theories of learning. New York: Appleton-Century- Crofts, Inc.,(2nd.edition:1956).

209 Vernon,M.D.(1969) op.cit., p.10.

(3.1.3)Goal-directed behaviour: subjective properties.

210 Geiwitz,P.J.(1969) Non-Freudian personality theories. Basic concepts in psychology series. Belmont,Calif., Brooks/Cole Publishing Company. pp.91-101.

211 Jordan,N.(1968) op.cit., pp.117-144.

212 Lewin,K.(D.Cartwright)(ed.)(1967) Field theory in social science: selected theoretical papers.London: Tavistock Publications. New York: Harper. p.274.

213 Head,Sir Henry (1920) Studies in neurology. op.cit.,

Bartlett,Sir Frederick C.(1920) Remembering.op.cit.,

Lee,T.R.(1968) Urban neighbourhood as a socio-spatial schemata. Human Relations, vol.21:241-267.

214 Lewin,K.(D.Cartwright)(ed.)(1967) op.cit., p.59.

215 Jones,J.C.(1970) Design Methods: seeds of human futures. London: Wiley. p.303.

(3.1.4) Goal-directed behaviour: system properties.

216 Hinde,R.A.(1966) op.cit., p.305.

217 Deutsch,J.A.(1960) op.cit., p.25.

218 Broadbent,D.E.(1964) Behaviour. London: Methuen. p.194. London: Eyre & Spottiswoode:1961.

219 Sommerhoff,G.(1969) The abstract characteristics of living systems. In: F.E.Emery (ed.) Systems thinking. Harmondsworth: Penguin Books. pp.147-202.

220 Hinde,R.A.(1966) op.cit., pp.304-7.

221 Broadbent,D.E.(1964) op.cit., p.196.

(3.1.5) Withdrawal and avoidance behaviour.

222 It is suggested that flagellants derive their satisfactions from fulfilment of the need to establish the perimeters of their ego and body-image boundary.

223 Vernon,M.D.(1969) op.cit., p.49.

224 Metzner,R.(1961) op.cit., p.11.

(3.1.6) Reflex actions.

225 Miller,G.A., Galanter,E. and K.H.Pribam (1960) Plans and the structure of behavior. New York: Holt,Rinehart & Winston.

226 Pavlov,I.P.(1955) Selected works. London: Central Books Ltd.

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227 Broadbent,D.E.(1964) op.cit., p.55.

228 Hinde,R.A.(1966) op.cit., p.97.

229 Sokolov,E.N.(1960) Neuronal models and the orienting reflex. In: M.A.B.Brazier (ed.) The central nervous system and behavior. New York: Josiah Macy Foundation.

(3.1.7) Avoidance learning.

230 Metzner, R. (1961) op.cit., pp.1-7.

231 Broadbent, D.E. (1964) op.cit., pp.76-7.

(3.1.8) The criteria of avoidance behaviour.

232 Cohen, J. (1968) Hazard and risk on the road. In: Cohen, J. and B. Preston. Causes and prevention of road accidents. London: Faber. p.36.

233 Cohen, J. (1957) Subjective probability. Scientific American. November, 427.

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234 Cohen, J. and C.E.M. Hansel (1955) Experimental risk-taking. Jb. Psychol. Psychother., Winter.

235 Cohen, J. (1968) op.cit., p.44.

236 Cohen, J. and I. Christensen (1970) Information and choice. Edinburgh: Oliver & Boyd. p.82.

(3.1.9) Preferred speed and spatial preference.

237 Cratty, B.J. (1967) op.cit., pp.201-5.

238 Describing the transformation of the individual when he sits behind the steering wheel of a car, Cohen noted that the driver became cut off from natural regulatory systems:

"...when a pedestrian walks or runs or otherwise alters his posture, his movements are governed by a homeostatic system (maintaining)...constancy or equilibrium in bodily processes, among other things, in the balance of the hormones, in temperature, and in control of the cardio-vascular system and the reticular formation. Any deviation from this steady state activates measures which restore it. The equilibrium embraces all forms of muscular contraction including the rhythmic action of the respiratory muscles and the muscular components of speech as well as activity of the arms and legs....and it is maintained by mechanisms of the central nervous system. Motor impulses transmitted from the brain lead to contraction of muscles thereby exciting sense organs with them. These sense organs return impulses to the brain with information of the muscular action that has taken place, whereupon the brain responds by appropriately sustaining, suppressing or increasing further activity on the part of the muscles.
Cohen, J. (1968) op.cit., p.26.

(3.1.9)

239 Allport,G.W.(1933) Studies in expressive movement. New York: The Macmillan Co.,

Cratty,B.J.(1967) op.cit.,

(3.2) THE MODERATORS OF THE SAFE DISTANCE

240 Koffka,K.(1935) Principles of Gestalt psychology. London: Kegan Paul.

Köhler,W.(1929) Gestalt psychology. New York: Liveright.

The first systematic attempt to apply the principles of Gestalt psychology to the visual arts:

Arnheim,R.(1956) Art and visual perception. London: Faber and Faber.

241 Cratty,B.J.(1967) Movement behaviour and motor learning.(2nd.edition) Philadelphia: Lea & Febiger. p.33.

Werner,H.and S.Wapner (1949) Sensory-tonic field theory of perception. J.Personal., 18:88-107.

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242 Kilpatrick,F.P.(ed.)(1961) Explorations in transactional psychology. New York University Press.

Warr and Knapper discuss whether person perception is intrinsically different from object perception. They note that during interaction between people there is a reciprocal influence of A on B and B on A. Thus the stimulus influences the perceiver and the perceiver influences the stimulus. They wrote: "...if we treat this as a question of the perceiver influencing what information the stimulus presents, then interaction is clearly present in many cases of object perception". (p.31)

Warr,P.B.and C.Knapper (1968) The perception of people and events. London: Wiley. pp.31-2,46.

243 Bartlett,Sir Frederick (1932) Remembering. Cambridge University Press. p.248.

But not only culture, but age, class, occupation, and political and religious beliefs. See:

Warr,P.B.and C.Knapper (1968) op.cit., p.207.

244 Segall,M.H., T.D.Campbell and M.J.Herskovitz (1966) The influence of culture on visual perception. Indianapolis: Bobbs-Merrill. Also: Science:139:769. (1963)

245 Evans-Pritchard,E.E.(1940) The Nuer. Oxford University Press. pp.41-8.

Whorf,B.L.(1940) Science and linguistics. Technology Review. 44:229-248.

(3.2.1) The perceptual process.

246 Cratty, B.J. (1967) op.cit., pp.39-42.

247 "Perception" can take place in the absence of a distal stimulus if proximal stimulation is artificially induced by stimulation of cerebral nerve pathways.

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(3.2.2) The receptors.

248 Wyburn, G.M., R.W. Pickford & R.J. Hirst (1964) Human senses and perception. London & Edinburgh: Oliver & Boyd.

249 Pressure on the eyeball can produce a phosphene, i.e. a bright ring or area in the field of vision.

250 Witkin, H.A., Lewis, H.B., Hertzman, M., Machover, K., Meissner, P.B. and S. Wapner (1954) Personality through perception. New York: Harper.

251 McCleary, R.A. and R.Y. Moore (1965) Subcortical mechanisms of behavior. New York: Basic Books. p.7.

252 Merton, P.A. (1964) Human position sense and sense of effort. Sym. Soc. exp. Biol., 18:387-400.

(3.2.3) Individual differences.

253 Abrupt changes in gradient are particularly hazardous to the blind. Kerbs, holes, steps up and down, and thin obstacles such as chains and posts are difficult to relate to auditory cues. See:

Benham, T.A. (1963) Electronic travel aids for the blind. In: E. Bennett et al., (eds.) Human factors in technology. New York: McGraw-Hill.

254 An extensive bibliography of research into the cause of accidents is given in:

Cohen, J. and B. Preston (1968) Causes and prevention of road accidents. London: Faber and Faber.

Pickford, R.W. (1951) Individual differences in colour vision. London: Routledge, Kegan Paul.

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255 Birren,J.E.(ed.)(1959) Handbook of aging and the individual. University of Chicago Press.

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256 Sommer,R.(1959) Studies in personal space. Sociometry. 22: 247-260.

Reference to schizophrenic body-image pathology is made in:
Fisher,S.and S.E.Cleveland (1968) op.cit., pp.15-20.

257 Allport,G.W.(1961) Pattern and growth in personality. New York: Holt, Rinehart and Winston.

258 Vernon,M.D.(1970) Perception through experience. London: Methuen. p.230.

259 Brown,W.P.(1961) Conceptions of perceptual defence. Brit.J.Monog. Supp., 35.

(3.2.4)The visual experience of objects.

260 Comprehensive accounts of the matters discussed in this section can be found in most introductory texts to perception, for example:

Day,R.H.(1969) Human perception. London: Wiley.

Gibson,J.J.(1950) The perception of the visual world. Boston: Houghton Mifflin.

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Vernon,M.D.(1970) Perception through experience. op.cit.,

(3.2.6)Perceptual defence.

261 Vernon,M.D.(ed.)(1966) op.cit., pp.331-417.

Vernon,M.D.(1970) op.cit.,pp.218-227.

Brown,W.P.(1961) op.cit.,

262 Rosen,A.C.(1954) Change in perceptual threshold as a protective function of the organism. Journal of Personality. 23:182-194. See also: Vernon,M.D.(1966) p.395ff.

263 Lazarus,R.S.and R.A.McCleary (1951) Autonomic discrimination without awareness: a study of subception. Psychol. Rev., 58:113-122. See also: Vernon,M.D.(1966) p.386ff.

264 Chordorkoff,B.(1956) Anxiety, threat and defensive reactions. J.Gen. Psychol., 54,191.

265 Vernon,M.D.(1970) op.cit.,p.226.

(3.3) THE SPATIAL IMAGE OF SELF

266 Critchley,M.(1968) Corporeal awareness (Body-image; Body-scheme). In: J.G.Howells (ed.) Modern perspective in world psychiatry, vol.2. Edinburgh: Oliver & Boyd. pp.130-145.

267 Head, Sir Henry.(1920) Studies in neurology, 2 vols., Oxford University Press.

268 Bartlett, Sir Frederick.(1932) Remembering. Cambridge University Press.

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270 Freud,S.(1923) The ego and the id.London: Hogarth Press, 1927. p.31.
An interpretative note by the authorised translater, Joan Riviere. Cited by Fisher & Cleveland (1968) op. cit., p.42.

(3.3.1) The percept and the image as cognitive processes.

271 Richardson,A.(1969) Mental imagery. London: Routledge & Kegan Paul. pp.1-12.

272 Richardson,A.(1969) op.cit., p.6.

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(3.3.2) Locational and defensive properties of the body-image, body-schema.

273 Head, Sir Henry(1920) op.cit., vol.2, p.605.

274 Oldfield,R.C. and O.L.Zangwill (1942) Head's concept of the schema and its application in contemporary British psychology: 1 and 11. Brit.J.Psychol., 32:267-286; 33:58-64.

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(3.3.2)

275 Head, Sir Henry (1920) op.cit., vol.2, p.606.

(3.3.3) How we build up the body-image.

276 Lhermitte, J.(1939) L'image de notre corps. Paris: Nouvelle Revue Critique. (Not seen). Cited by: Critchley, M.(1950) The body image in neurology. Lancet, i, 25th February, pp.335-341.

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278 Schilder, P.(1935) The image and appearance of the human body. London: Kegan Paul, Trench, Trubner & Co.,

279 Witkin, H.A. et al., (1954) Personality through perception. New York: Harper.

(3.3.4) The changing characteristics of the body-image.

280 Cohen, J.(1968) The motorist as centaur: a bio-robot model. Ch.2, Part 1. In: J.Cohen and B.Preston. Causes and prevention of road accidents. London: Faber.

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He also notes:
"Horses were sacred to the moon, and hobby-horse dances, designed to make rain, have apparently given rise to the legend that the Centaurs (of Magnesia) were half horse, half man. The earliest Greek representation of Centaurs - two men joined at the waist to horses bodies - is found on a Mycenaean gem from the Heraeum at Argos; they face each other and are dancing....." P.209-210, note 3.

Graves, R.(1955) The Greek myths, 2 volumes. Harmondsworth: Penguin Books.

281 Stratton, G.M.(1896) Some preliminary experiments on vision without inversion of the retinal image. Psychol. Rev., 3:611-617.

Good descriptions of work in this area are given by: Smith, K.U. and W.M.Smith (1962) Perception and motion. Philadelphia: W.B.Saunders.

282 Schilder, P.(1935) op.cit., p.211.
Much of section (3.3.4) is indebted to Schilder although many of his examples do occur elsewhere.

(3.3.4)

283 Laing,R.D.(1965) The divided self: an existentialist study in sanity and madness. Harmondsworth: Penguin Books. London: Tavistock Publications, 1960.

284 Fisher,S.and S.E.Cleveland (1968) op.cit.,pp.15-16.

(4.0) EXPERIMENT

(4.0.4) Method.

285 Smith,K.U and W.M.Smith (1962) Perception and motion. Philadelphia: W.B.Saunders. p.29

(4.3) Conclusion.

286 "Figuring out how we behave" Coventry Evening Telegraph. 16 November,1971.

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APPENDIX No. 1

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No. F.1

	FOOTSTEP SEQUENCE									
TRIAL	*1	2	3	4	5	6	7	8	9	10
1	25.5	46.3	71.1	97.5	121.6	147.5	174.3	199.7	224.3	247.9
2	24.0	45.4	70.0	96.5	121.8	148.0	173.0	198.3	221.4	246.6
3	25.4	47.8	72.5	98.3	123.6	150.7	176.2	202.0	227.6	252.0
4	25.3	48.3	72.3	98.0	123.8	149.4	176.3	202.0	227.8	252.3
5	27.7	49.9	77.1	102.3	128.4	154.2	179.7	204.3	228.5	254.0
MEAN (1-5)	25.5	47.5	72.6	98.5	123.8	149.9	175.9	201.2	225.9	250.5
6	27.7	47.8	73.4	97.9	123.4	148.2	175.5	201.2	227.9	252.5
7	26.2	48.7	74.8	101.3	127.7	155.7	181.1	208.6	235.1	259.2
8	25.1	45.8	72.2	97.9	122.9	149.7	174.1	200.3	225.9	251.7
9	24.7	45.9	69.4	95.0	120.3	146.0	171.4	196.7	220.0	245.2
10	26.4	46.8	74.0	100.0	124.6	151.3	176.6	203.1	227.2	254.1
MEAN (6-10)	26.0	47.0	72.7	98.4	123.7	150.2	175.7	202.0	227.2	252.5

All trials began on right foot.

Dimensions (inches) are means of heel and toe-marks.

Step *(1) includes an allowance (5.0 inches) for half the length of the S's. shoe (APPENDIX 2 FIG.130) because Ss. were asked to toe the starting line (zero inches) at the start of their walk.

For data of heel and toe locations see APPENDIX 1(TABLE 39).

For mean stride length see RESULTS (TABLE 5).

TABLE(27). MEAN DISTANCE OF FOOTPRINT CENTRE-LINE LOCATIONS FROM START IN UNOBSTRUCTED PASSAGEWAY.(F.1)

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No. F.2

	FOOTSTEP SEQUENCE									
TRIAL	*1	2	3	4	5	6	7	8	9	10
1	21.9	41.5	63.7	89.0	111.7	136.0	159.2	184.7	208.7	234.0
2	24.4	42.6	66.3	92.4	116.5	141.1	164.7	189.4	213.9	239.2
3	25.0	47.2	72.2	98.6	123.9	150.3	176.0	202.3	233.7	255.9
4	26.3	47.4	73.7	102.2	126.9	155.8	182.7	212.1	236.9	263.2
5	23.9	45.5	70.8	99.5	125.2	151.7	178.4	204.0	229.0	256.8
MEAN 1-5)	24.3	44.8	69.3	96.3	120.8	147.0	172.2	198.5	224.4	249.8
6	24.8	46.3	72.0	98.2	123.9	151.9	172.2	203.9	230.4	259.1
7	25.4	47.0	72.3	100.2	126.7	153.0	179.0	206.8	234.0	261.2
8	29.5	52.5	77.9	106.0	132.7	163.3	190.6	218.9	245.5	269.0
9	23.8	46.8	71.8	100.4	126.2	153.3	180.5	208.4	234.8	260.0
10	24.9	49.2	75.7	104.2	131.3	161.0	186.7	213.3	240.3	266.5
MEAN 6-10)	25.7	48.4	73.9	101.8	128.2	156.5	182.8	210.3	237.0	263.2

All trials began on right foot.

Dimensions (inches) are means of heel and toe-marks.

Step *(1) includes an allowance (5.0 inches) for half the length of the S's shoe (APPENDIX 2 FIG.131) because Ss. were asked to toe the starting line (zero inches) at the start of their walk.

For data of heel and toe locations see APPENDIX 1(TABLE 40).

For mean stride length see RESULTS (TABLE 6).

TABLE(28). MEAN DISTANCE OF FOOTPRINT CENTRE-LINE LOCATIONS FROM START OF UNOBSTRUCTED PASSAGEWAY.(F.2)

APPENDIX 1.EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No.F.3

	FOOTSTEP SEQUENCE									
TRIAL	*1	2	3	4	5	6	7	8	9	10
1	28.2	51.4	80.7	109.5	137.7	165.1	192.8	220.6	249.1	-
2	28.0	51.8	79.2	108.2	137.1	165.3	193.4	221.7	248.5	-
3	30.6	54.6	84.3	112.8	142.0	170.6	199.4	227.9	256.6	-
4	27.9	49.8	78.9	107.4	135.7	163.8	191.9	218.6	245.9	-
5	27.6	49.8	78.4	107.1	134.9	162.8	189.7	217.0	243.0	-
MEAN 1-5)	28.5	51.5	80.3	109.0	137.5	165.5	193.4	221.2	248.6	-
6	26.3	49.0	77.2	104.1	132.5	160.1	187.5	216.0	242.5	-
7	27.8	51.2	79.0	106.9	140.3	163.7	192.5	219.7	247.0	-
8	28.0	51.3	80.5	108.4	137.5	165.9	194.1	221.8	249.6	-
9	27.9	51.4	79.7	109.3	137.5	166.1	194.5	223.1	250.6	-
10	24.8	48.1	76.9	105.5	135.4	164.0	192.6	221.2	248.7	-
MEAN 6-10)	27.0	50.2	78.7	106.8	136.6	164.0	192.2	220.4	247.7	-

All trials began on right foot.

Dimensions(inches) are means of heel and toe-marks.

Step *(1) includes an allowance (5.0 inches) for half the length of the S's. shoe (APPENDIX 2 FIG.132) because Ss. were asked to toe the starting line (zero inches) at the start of their walk.

For data of heel and toe locations see APPENDIX 1(TABLE 41).

For mean stride length see RESULTS (TABLE 7).

TABLE(29). MEAN DISTANCE OF FOOTPRINT CENTRE-LINE LOCATIONS FROM START OF UNOBSTRUCTED PASSAGEWAY.(F.3)

APPENDIX 1.EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No. M.1

TRIAL	FOOTSTEP SEQUENCE									
	*1	2	3	4	5	6	7	8	9	10
1	27.8	48.8	77.4	104.6	131.9	157.6	183.6	210.6	230.5	260.7
2	30.3	52.1	80.9	108.4	135.2	161.9	188.3	215.8	241.4	266.7
3	27.7	49.9	78.0	105.2	132.0	158.2	186.1	211.8	236.3	260.6
4	30.4	51.4	79.4	105.8	132.7	160.4	186.3	210.1	236.4	262.1
5	27.8	49.2	76.2	103.7	131.1	157.9	185.8	213.2	239.0	264.6
MEAN 1-5)	29.0	50.3	78.4	105.5	132.6	159.2	186.0	212.3	236.7	262.9
6	27.5	46.9	75.3	100.8	128.9	155.1	182.6	207.7	233.7	259.5
7	28.1	48.6	77.6	104.1	130.9	155.5	183.7	209.7	236.4	260.5
8	26.6	47.6	75.9	103.7	131.3	156.2	183.4	20819	234.2	262.0
9	28.9	48.9	75.5	101.7	128.1	154.3	181.0	206.5	232.3	258.1
10	27.7	48.7	76.4	102.6	130.9	155.6	185.1	211.0	238.3	264.0
MEAN 6-10)	27.8	48.1	76.1	102.6	130.0	155.3	183.2	208.8	235.0	260.8

All trials began on left foot.

Dimensions (inches) are means of heel and toe-marks.

Step *(1) includes an allowance (5.5 inches) for half the length of the S's. shoe (APPENDIX 2 FIG.133) because Ss. were asked to toe the starting line (zero inches) at the start of their walk.

For data of heel and toe locations see APPENDIX 1(TABLE 42).

For mean stride length see RESULTS (TABLE 8).

TABLE(30).MEAN DISTANCE OF FOOTPRINT CENTRE-LINE LOCATIONS FROM START OF UNOBSTRUCTED PASSAGEWAY.(M.1)

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No. M.2

	FOOTSTEP SEQUENCE									
TRIAL	*1	2	3	4	5	6	7	8	9	10
1	28.1	50.2	80.6	108.6	138.6	166.7	197.0	223.5	-	-
2	30.8	56.5	86.1	117.2	145.3	176.5	205.6	235.9	-	-
3	32.7	58.5	90.9	122.4	154.3	186.2	218.1	250.6	-	-
4	29.9	57.5	88.0	121.3	151.6	184.4	213.3	246.8	-	-
5	31.7	59.9	89.1	121.7	152.1	183.9	214.9	248.6	-	-
MEAN 1-5)	30.6	56.5	86.9	118.2	148.3	179.5	209.8	241.1	-	-
6	32.9	58.0	91.6	123.7	155.5	187.7	220.2	253.2	-	-
7	37.6	61.6	95.4	129.0	162.5	195.5	229.2	260.8	-	-
8	32.6	57.7	91.5	122.1	155.1	184.4	217.7	248.9	-	-
9	34.9	61.5	91.4	128.6	163.2	193.1	227.2	256.0	-	-
10	34.9	61.7	92.4	129.2	160.8	196.6	230.5	262.0	-	-
MEAN 6-10)	34.6	60.1	92.5	126.5	159.4	191.5	225.0	256.2	-	-

All trials began on left foot except trials 2,4 and 5.

Dimensions (inches) are means of heel and toe-marks.

Step *(1) includes an allowance (6.0 inches) for half the length of the S's. shoe (APPENDIX 2 FIG.134) because Ss. were asked to toe the starting line (zero inches) at the start of their walk.

For data of heel and toe locations see APPENDIX 1(TABLE 43).

For mean stride length see RESULTS (TABLE 9).

TABLE(31) MEAN DISTANCE OF FOOTPRINT CENTRE-LINE LOCATIONS FROM START OF UNOBSTRUCTED PASSAGEWAY.(M.2)

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No. M.3

	FOOTSTEP SEQUENCE									
TRIAL	*1	2	3	4	5	6	7	8	9	10
1	29.8	56.7	90.2	123.2	157.0	190.1	222.7	254.6	-	-
2	28.9	52.3	83.9	115.4	146.8	181.1	214.2	248.7	-	-
3	30.2	57.3	90.1	124.0	156.5	190.1	223.3	257.2	-	-
4	28.5	53.1	86.3	120.1	153.5	188.9	221.5	255.9	-	-
5	30.6	58.0	89.9	122.3	155.6	188.6	220.8	251.3	-	-
MEAN 1-5)	29.6	55.5	88.1	121.0	153.9	187.8	220.5	253.5	-	-
6	26.0	51.9	84.9	117.4	150.5	184.2	217.6	249.8	-	-
7	27.5	52.2	84.9	117.4	149.3	181.8	213.4	245.6	-	-
8	29.1	54.8	88.9	122.5	158.1	192.5	226.2	257.6	-	-
9	26.9	51.1	85.0	116.3	151.0	185.2	219.6	252.9	-	-
10	28.4	54.3	86.9	119.3	152.8	184.6	217.5	250.0	-	-
MEAN 6-10)	27.6	52.9	86.1	118.6	152.3	185.7	218.9	251.2	-	-

All trials began on left foot.

Dimensions (inches) are means of heel and toe-marks.

Step *(1) includes an allowance (6.0 inches) for half the length of the S's. shoe (APPENDIX 2 FIG.135) because Ss. were asked to toe the starting line (zero inches) at the start of their walk.

For data of heel and toe locations see APPENDIX 1(TABLE 44).

For mean stride length see RESULTS (TABLE 10).

TABLE(32).MEAN DISTANCE OF FOOTPRINT CENTRE-LINE LOCATIONS FROM START OF UNOBSTRUCTED PASSAGEWAY.(M.3)

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No. F.1

Undirected Trials (1-5)

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
1	R	25.5	29.8	71.1	29.1	121.6	29.3	174.3	28.4	224.3	26.6
	L	46.3	26.1	97.5	25.9	147.5	25.8	199.7	24.2	247.9	23.0
2	R	24.0	28.0	70.0	28.3	121.8	28.0	173.0	26.8	221.4	29.0
	L	45.4	24.2	96.5	25.4	148.0	23.5	198.3	25.1	246.6	25.3
3	R	25.4	29.0	72.5	29.1	123.6	29.6	176.2	28.3	227.6	26.8
	L	47.8	23.9	98.3	25.6	150.7	25.4	202.0	24.6	252.0	23.6
4	R	25.3	28.2	72.3	27.6	123.8	28.1	176.3	26.8	227.8	26.8
	L	48.3	25.0	98.0	24.7	149.4	24.4	202.0	24.5	252.3	23.4
5	R	27.7	28.7	77.1	26.8	128.4	26.1	179.7	26.3	228.5	27.0
	L	49.9	24.5	102.3	24.0	154.2	22.9	204.3	23.4	254.0	25.5

(D) Distance from start. (R) Right foot.
(W) Width from L.H.wall. (L) Left foot.

Directed Trials (6-10)

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
6	R	27.7	25.8	73.4	26.7	123.4	26.7	175.5	26.6	227.9	26.5
	L	47.8	22.5	97.9	24.3	148.2	24.0	201.2	23.6	252.5	21.6
7	R	26.2	28.4	74.8	28.0	127.7	29.0	181.1	29.4	235.1	28.3
	L	48.7	24.4	101.3	25.4	155.7	26.3	208.6	26.3	259.2	23.5
8	R	25.1	28.3	72.2	26.7	122.9	27.4	174.1	28.9	225.9	28.5
	L	45.8	24.3	97.9	23.9	149.7	24.5	200.3	26.3	251.7	25.1
9	R	24.7	28.5	69.4	28.0	120.3	30.0	171.4	27.3	220.0	27.9
	L	45.9	22.9	95.0	25.9	146.0	25.0	196.7	24.3	245.2	24.9
10	R	26.4	27.9	74.0	26.8	124.6	27.8	176.6	27.5	227.2	29.0
	L	46.8	24.1	100.0	24.3	151.3	24.4	203.1	25.1	254.1	25.0

Dimensions (inches) are means of heel and toe-marks.

For data of heel and toe locations see APPENDIX 1 (TABLE 39).

For mean stride length in Trials (1-5) and (6-10) see RESULTS (TABLE 5).

For mean distance of footprint locations from L.H.wall in Trials (1-5) and (6-10) see RESULTS (TABLE 13).

TABLE (33). FOOTPRINT CENTRE-LINE LOCATIONS IN UNOBSTRUCTED PASSAGEWAY. (F.1)

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No. F.2

Undirected Trials (1-5)

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
1	R	21.9	27.5	63.7	31.1	111.7	31.5	159.2	28.7	208.7	29.7
	L	41.5	26.8	89.0	28.6	136.0	27.3	184.7	25.9	234.0	28.9
2	R	24.4	24.8	66.3	30.2	116.5	33.3	164.7	34.3	213.9	34.8
	L	42.6	24.0	92.4	28.3	141.1	30.1	189.4	30.9	239.2	30.8
3	R	25.0	27.9	72.2	31.3	123.9	33.0	176.0	33.4	233.7	32.3
	L	47.2	25.4	98.6	27.8	150.3	29.1	202.3	29.8	255.9	27.8
4	R	26.3	23.8	73.7	28.6	126.9	32.8	182.7	32.8	236.9	30.3
	L	47.4	21.8	102.2	26.6	155.8	29.9	212.1	26.5	263.2	27.8
5	R	23.9	26.5	70.8	29.3	125.2	29.1	178.4	26.5	229.0	26.9
	L	45.5	24.8	99.5	24.9	151.7	23.7	204.0	22.3	256.8	26.0

(D) Distance from start. (R) Right foot.
(W) Width from L.H.wall. (L) Left foot.

Directed Trials (6-10)

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
6	R	24.8	27.4	72.0	26.2	123.9	26.3	177.2	27.2	230.4	27.8
	L	46.3	23.0	98.2	23.4	151.9	22.9	203.9	24.0	259.1	26.9
7	R	25.4	27.5	72.3	30.3	126.7	32.5	179.0	32.7	234.0	32.6
	L	47.0	25.4	100.2	28.3	153.0	30.2	206.8	29.5	261.2	30.1
8	R	29.5	26.7	77.9	28.2	132.7	29.5	190.6	28.7	245.5	29.9
	L	52.5	25.5	106.0	25.3	163.3	26.2	218.9	26.3	269.0	27.3
9	R	23.8	29.5	71.8	29.8	126.2	30.8	180.5	29.6	234.8	29.0
	L	46.8	26.5	100.4	27.8	153.3	28.4	208.4	26.5	260.0	26.0
10	R	24.9	28.8	75.7	29.3	131.3	30.2	186.7	31.7	240.3	31.6
	L	49.2	26.6	104.2	24.8	161.0	26.2	212.3	28.1	266.5	26.1

Dimensions (inches) are means of heel and toe-marks.

For data of heel and toe locations see APPENDIX 1 (TABLE 40).

For mean stride length in Trials (1-5) and (6-10) see RESULTS (TABLE 6).

For mean distance of footprint locations from L.H.wall in Trials (1-5) and (6-10) see RESULTS (TABLE 14).

TABLE (34). FOOTPRINT CENTRE-LINE LOCATIONS IN UNOBSTRUCTED PASSAGEWAY. (F.2).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No. F.3

Undirected Trials (1-5)

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
1	R	28.2	28.9	80.7	29.5	137.7	27.6	192.8	28.7	249.1	27.6
	L	51.4	27.7	109.5	27.4	165.1	26.3	220.6	26.8	-	-
2	R	28.0	28.9	79.2	27.8	137.1	27.6	193.4	29.7	248.5	28.0
	L	51.8	26.2	108.2	26.2	165.3	26.6	221.7	26.2	-	-
3	R	30.6	30.5	84.3	28.4	142.0	28.2	199.4	26.9	256.6	27.6
	L	54.6	25.1	112.8	26.7	170.6	25.2	227.9	25.3	-	-
4	R	27.9	29.9	78.9	27.8	135.7	25.9	191.9	26.7	245.9	28.4
	L	49.8	27.5	107.4	25.3	163.8	23.0	218.6	25.1	-	-
5	R	27.6	30.8	78.4	29.9	134.9	30.3	189.7	28.0	243.0	27.7
	L	49.8	28.2	107.1	28.1	162.8	27.2	217.0	25.7	-	-

(D) Distance from start. (R) Right foot.
(W) Width from L.H.wall. (L) Left foot.

Directed Trials (6-10)

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
6	R	26.3	28.9	77.2	28.6	132.5	28.6	187.5	29.2	242.5	29.1
	L	49.0	27.5	104.1	26.9	160.1	27.5	216.0	28.3	-	-
7	R	27.8	27.9	79.0	27.1	140.3	28.0	192.5	26.4	247.0	24.1
	L	51.2	24.0	106.9	25.2	163.7	24.3	219.7	28.7	-	-
8	R	28.0	27.7	80.5	28.4	137.5	28.3	194.1	29.2	249.6	30.1
	L	51.3	26.0	108.4	25.3	165.9	26.8	221.8	26.4	-	-
9	R	27.9	28.7	79.7	28.9	137.5	28.9	194.5	26.8	250.6	26.6
	L	51.4	26.6	109.3	26.4	166.1	26.4	223.1	23.6	-	-
10	R	24.8	28.3	76.9	27.5	135.4	28.8	192.6	29.8	248.7	29.5
	L	48.1	25.4	105.5	25.8	164.0	25.8	221.2	27.9	-	-

Dimensions (inches) are means of heel and toe-marks.

For data of heel and toe locations see APPENDIX 1 (TABLE 41).

For mean stride length in Trials (1-5) and (6-10) see RESULTS (TABLE 7).

For mean distance of footprint locations from L.H.wall in Trials (1-5) and (6-10) see RESULTS (TABLE 15).

TABLE (35).FOOTPRINT CENTRE-LINE LOCATIONS IN UNOBSTRUCTED PASSAGEWAY. (F.3)

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No. M.1

Undirected Trials (1-5)

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
1	R	48.8	22.4	104.6	23.8	157.6	25.5	210.6	27.3	260.7	24.5
	L	27.8	13.5	77.4	15.7	131.9	18.7	183.6	19.7	230.5	18.7
2	R	52.1	25.7	108.4	26.3	161.9	23.8	215.8	23.5	266.7	25.5
	L	30.3	18.1	80.9	21.0	135.2	18.6	188.3	18.0	241.4	17.0
3	R	49.9	22.6	105.2	23.5	158.2	24.6	211.8	25.0	260.6	27.0
	L	27.7	14.3	78.0	16.5	132.0	15.8	186.1	17.0	236.3	19.4
4	R	51.4	23.9	105.8	24.9	160.4	24.5	210.1	24.2	262.1	26.6
	L	30.4	16.4	79.4	16.6	132.7	16.9	186.3	17.0	236.4	17.5
5	R	49.2	24.3	103.7	24.3	157.9	24.9	213.2	24.6	264.6	26.5
	L	27.8	16.6	76.2	18.5	131.1	16.5	185.8	17.6	239.0	17.5

(D) Distance from start. (R) Right foot.
(W) Width from L.H.wall. (L) Left foot.

Directed Trials (6-10)

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
6	R	46.9	31.2	100.8	30.8	155.1	31.0	207.7	32.1	259.5	33.1
	L	27.5	24.1	75.3	24.5	128.9	24.7	182.6	24.9	233.7	24.8
7	R	48.6	31.6	104.1	31.3	155.5	31.7	209.7	32.5	260.5	33.8
	L	28.1	23.5	77.6	22.7	130.9	22.7	183.7	25.0	236.4	23.4
8	R	47.6	31.2	103.7	30.7	156.2	32.1	208.9	34.0	262.0	34.0
	L	26.6	22.1	75.9	23.6	131.3	22.4	183.4	26.0	234.2	26.5
9	R	48.9	32.7	101.7	33.1	154.3	33.0	206.5	33.1	258.1	34.5
	L	28.9	23.9	75.5	24.0	128.1	24.2	181.0	25.3	232.3	25.3
10	R	48.7	31.9	102.6	30.2	155.6	30.1	211.0	31.5	264.0	31.0
	L	27.7	22.7	76.4	23.6	130.9	21.3	185.1	23.1	238.3	23.7

Dimensions (inches) are means of heel and toe-marks.

For data of heel and toe locations see APPENDIX 1 (TABLE 42).

For mean stride length in Trials (1-5) and (6-10) see RESULTS (TABLE 8).

For mean distance of footprint locations from L.H.wall in Trials (1-5) and (6-10) see RESULTS (TABLE 16).

TABLE (36).FOOTPRINT CENTRE-LINE LOCATIONS IN UNOBSTRUCTED PASSAGEWAY. (M.1).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No. M.2

Undirected Trials (1-5)

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
1	R	50.2	30.5	108.6	29.6	166.7	29.0	223.5	28.4	–	–
	L	28.1	23.8	80.6	25.0	138.6	23.5	197.0	24.0	–	–
2	R	30.8	27.2	86.1	25.8	145.3	28.4	205.6	29.3	–	–
	L	56.5	21.0	117.2	22.9	176.5	24.9	235.9	24.7	–	–
3	R	58.5	31.2	122.4	32.9	186.2	31.7	250.6	32.3	–	–
	L	32.7	24.5	90.9	31.5	154.3	28.4	218.1	29.2	–	–
4	R	29.9	30.0	88.0	29.3	151.6	28.5	213.3	30.7	–	–
	L	57.5	24.5	121.3	23.5	184.4	26.6	246.8	27.0	–	–
5	R	31.7	28.6	89.1	28.4	152.1	29.5	214.9	32.1	–	–
	L	59.9	25.0	121.7	24.7	183.9	27.3	248.6	31.5	–	–

(D) Distance from start. (R) Right foot.
(W) Width from L.H.wall. (L) Left foot.

Directed Trials (6-10)

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
6	R	58.0	30.7	123.7	32.2	187.7	33.6	253.2	34.4	–	–
	L	32.9	26.2	91.6	26.8	155.5	30.4	220.2	31.3	–	–
7	R	61.6	33.5	129.0	32.5	195.5	32.0	260.8	29.9	–	–
	L	37.6	25.9	95.4	30.2	162.5	27.9	229.2	26.6	–	–
8	R	57.7	29.7	122.1	28.8	184.4	29.8	248.9	30.3	–	–
	L	32.6	24.4	91.5	24.5	155.1	23.1	217.7	25.1	–	–
9	R	61.5	29.0	128.6	27.2	193.1	28.6	256.0	28.6	–	–
	L	34.9	25.0	91.4	22.7	163.2	24.1	227.2	23.5	–	–
10	R	61.7	29.6	129.2	32.7	196.6	31.7	262.0	31.4	–	–
	L	34.9	25.2	92.4	26.4	160.8	27.7	230.5	26.1	–	–

Dimensions (inches) are means of heel and toe-marks.

For data of heel and toe locations see APPENDIX 1 (TABLE 43).

For mean stride length in Trials (1-5) and (6-10) see RESULTS (TABLE 9).

For mean distance of footprint locations from L.H.wall in Trials (1-5) and (6-10) see RESULTS (TABLE 17).

TABLE (37).FOOTPRINT CENTRE-LINE LOCATIONS IN UNOBSTRUCTED PASSAGEWAY. (M.2).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No. M.3

Undirected Trials (1-5)

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
1	R	56.7	28.2	123.2	26.3	190.1	24.6	254.6	24.3	-	-
	L	29.8	24.8	90.2	23.7	157.0	20.9	222.7	19.7	-	-
2	R	52.3	31.4	115.4	29.5	181.1	28.1	248.7	26.2	-	-
	L	28.9	25.7	83.9	26.5	146.8	24.2	214.2	24.1	-	-
3	R	57.3	28.9	124.0	30.8	190.1	28.2	257.2	25.5	-	-
	L	30.2	23.3	90.1	23.1	156.5	24.5	223.3	22.4	-	-
4	R	53.1	26.9	120.1	27.6	188.9	27.7	255.9	29.0	-	-
	L	28.5	22.8	86.3	22.6	153.5	22.9	221.5	23.8	-	-
5	R	58.0	23.9	122.3	27.6	188.6	27.8	251.3	28.2	-	-
	L	30.6	22.8	89.9	20.7	155.6	24.8	220.8	24.0	-	-

(D) Distance from start. (R) Right foot.
(W) Width from L.H.wall. (L) Left foot.

Directed Trials (6-10)

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
6	R	51.9	27.5	117.4	27.2	184.2	28.0	249.8	27.7	-	-
	L	26.0	22.1	84.9	22.6	150.5	23.6	217.6	24.7	-	-
7	R	52.2	28.5	117.4	27.3	181.8	26.5	245.6	27.6	-	-
	L	27.5	23.7	84.9	24.0	149.3	23.8	213.4	23.5	-	-
8	R	54.8	29.0	122.5	29.7	182.5	25.5	257.6	28.7	-	-
	L	29.1	23.0	88.9	25.5	158.1	23.5	226.2	23.4	-	-
9	R	51.1	27.6	116.3	26.3	185.2	29.1	252.9	28.6	-	-
	L	26.9	23.3	85.0	22.3	151.0	23.3	219.6	25.5	-	-
10	R	54.3	29.0	119.3	29.0	184.6	26.4	250.0	28.6	-	-
	L	28.4	23.6	86.9	24.6	152.8	24.5	217.5	23.2	-	-

Dimensions (inches) are means of heel and toe-marks.

For data of heel and toe locations see APPENDIX 1 (TABLE 44).

For mean stride length in Trials (1-5) and (6-10) see RESULTS (TABLE 10).

For mean distance of footprint locations from L.H.wall in Trials (1-5) and (6-10) see RESULTS (TABLE 18).

TABLE (38).FOOTPRINT CENTRE-LINE LOCATIONS IN UNOBSTRUCTED PASSAGEWAY. (M.3).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No. F.1 (R) Right foot. (H) Heel. (D) Distance(ins.)
(L) Left foot. (T) Toe. (W) Width (ins.)

TRIAL	Step 1		Step 2		Step 3		Step 4		Step 5	
	D	W	D	W	D	W	D	W	D	W
1 R H	17.0	29.5	67.0	28.5	117.5	28.5	168.8	28.2	220.3	26.2
R T	24.0	30.0	75.2	29.7	125.7	30.0	177.7	28.5	228.3	27.0
L H	42.1	26.5	92.7	25.7	143.4	26.0	195.2	24.3	243.2	23.0
L T	50.4	25.7	102.2	26.0	151.5	25.5	204.1	24.0	252.5	23.0
2 R H	14.0	27.5	65.3	28.0	117.5	27.5	168.5	26.0	217.1	28.5
R T	24.0	28.5	74.7	28.5	126.0	28.5	177.4	27.5	225.7	29.5
L H	40.8	24.5	91.5	25.6	143.3	23.5	193.2	25.5	242.1	25.5
L T	50.0	23.9	101.4	25.2	152.6	23.5	203.3	24.7	251.0	25.0
3 R H	16.0	29.0	68.0	28.7	119.3	29.5	171.7	28.1	222.8	26.5
R T	24.8	29.0	76.9	29.5	127.8	29.7	180.6	28.5	232.3	27.0
L H	43.0	23.8	92.7	25.5	146.3	25.5	197.5	24.6	247.5	23.6
L T	52.5	24.0	103.9	25.7	155.1	25.2	206.4	24.6	256.3	23.5
4 R H	16.0	28.2	68.6	27.0	119.4	27.7	171.3	26.5	222.8	26.6
R T	24.5	28.1	76.0	28.2	128.2	28.5	181.3	27.0	232.8	27.0
L H	43.4	25.0	93.0	24.7	144.8	24.6	197.6	24.7	247.5	23.2
L T	53.2	25.0	103.0	24.7	154.0	24.2	206.2	24.3	257.0	23.5
5 R H	18.0	28.7	72.4	26.5	123.4	26.0	175.0	25.8	224.3	26.0
R T	27.3	28.7	81.7	27.0	133.3	26.2	184.4	26.8	232.6	28.0
L H	45.0	24.6	97.3	24.0	148.8	23.0	199.5	23.2	249.0	25.0
L T	54.7	24.3	107.2	24.0	159.6	22.7	209.0	23.5	259.0	25.9
6 R H	17.7	25.8	68.5	26.3	118.7	26.4	170.5	26.2	223.3	26.0
R T	27.6	25.8	78.2	27.0	128.0	26.9	180.5	27.0	232.5	27.0
L H	43.4	22.5	93.0	24.6	143.4	24.0	196.7	23.5	247.8	21.9
L T	52.1	22.4	102.7	23.9	152.9	23.9	205.7	23.7	257.2	21.3
7 R H	17.0	28.2	71.2	27.0	123.6	28.5	176.5	29.2	230.6	28.0
R T	25.3	28.5	78.3	29.0	131.7	29.5	185.7	29.5	239.5	28.5
L H	44.1	24.5	96.7	25.3	151.0	26.5	204.2	26.5	254.0	24.0
L T	53.3	24.2	105.8	25.5	160.3	26.0	212.9	26.1	264.3	23.0
8 R H	16.0	28.0	67.5	26.4	118.2	26.7	169.3	28.5	221.3	28.0
R T	24.2	28.6	76.9	27.0	127.5	28.0	178.8	29.3	230.5	29.0
L H	40.8	24.6	92.5	24.0	144.7	24.5	196.0	26.5	246.7	25.5
L T	50.8	24.0	103.3	23.7	154.7	24.4	205.6	26.0	256.7	24.7
9 R H	15.0	28.2	65.2	27.5	116.0	29.5	166.3	26.6	215.8	27.5
R T	24.3	28.7	73.5	28.5	124.5	30.5	176.5	28.0	224.1	28.2
L H	40.7	23.2	90.4	25.7	141.6	25.5	192.4	25.0	240.0	24.6
L T	51.1	22.5	99.6	26.0	150.3	24.5	200.9	23.5	250.3	25.1
10 R H	17.0	27.8	69.7	26.0	120.2	27.0	172.3	27.0	222.3	28.5
R T	25.8	28.0	78.3	27.5	128.9	28.5	180.9	28.0	232.0	29.5
L H	42.5	24.2	95.3	24.5	147.0	25.1	198.5	25.5	248.7	25.5
L T	51.0	24.0	104.4	24.0	155.5	23.7	207.7	24.7	259.5	24.5

TABLE (39).HEEL & TOE LOCATIONS IN UNOBSTRUCTED PASSAGEWAY(F1)

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No. F.2 (R) Right foot. (H) Heel. (D) Distance(ins.)
(L) Left foot. (T) Toe. (W) Width(ins.)

TRIAL	Step 1		Step 2		Step 3		Step 4		Step 5	
	D	W	D	W	D	W	D	W	D	W
1 R H	12.4	26.5	59.2	30.7	107.2	31.0	155.0	28.2	204.5	29.2
R T	21.4	28.5	68.2	31.5	116.3	32.0	163.4	29.2	213.0	30.2
L H	36.3	27.0	84.5	29.0	131.2	28.0	179.8	26.0	229.5	29.0
L T	46.7	26.7	93.6	28.2	140.8	26.5	189.6	25.7	238.6	28.7
2 R H	14.5	24.2	62.1	29.5	111.8	32.5	160.2	34.0	209.3	34.5
R T	24.3	25.5	70.5	31.0	121.2	34.0	169.2	34.5	218.5	35.0
L H	37.7	24.1	87.9	28.5	136.7	30.5	185.0	31.4	234.7	31.5
L T	47.5	24.0	97.0	28.0	145.5	29.7	193.8	30.5	243.8	30.0
3 R H	14.7	27.2	67.9	31.0	119.5	32.5	171.4	33.0	223.7	32.5
R T	25.3	28.6	76.5	31.5	128.3	33.5	180.6	33.7	233.9	32.0
L H	42.7	25.5	94.0	28.0	146.0	29.2	197.9	30.0	250.6	28.5
L T	51.7	25.3	103.2	27.6	154.7	29.0	206.8	29.5	261.3	27.0
4 R H	16.4	23.5	69.0	28.2	122.4	32.5	178.0	32.5	232.1	30.0
R T	26.2	24.1	78.4	29.0	131.5	33.0	187.5	33.0	241.8	30.5
L H	42.5	21.6	97.7	27.0	151.2	30.2	207.1	27.0	258.5	27.9
L T	52.3	22.0	106.8	26.2	160.4	29.5	217.1	26.0	268.0	27.6
5 R H	14.5	26.0	66.3	28.8	121.0	28.5	174.2	26.0	224.3	26.3
R T	23.4	27.0	75.3	29.8	129.5	29.7	182.6	27.0	233.7	27.5
L H	40.4	25.2	94.8	25.5	147.3	23.9	199.3	22.5	251.8	26.0
L T	50.5	24.5	104.2	24.2	156.1	23.5	208.8	22.0	261.8	26.0
6 R H	15.3	27.0	67.3	26.0	119.4	26.0	172.7	27.0	225.5	27.5
R T	24.2	27.8	76.7	26.4	128.5	26.5	181.7	27.3	235.3	28.0
L H	41.2	22.8	93.3	23.7	147.2	22.7	199.2	24.4	253.8	27.0
L T	51.3	23.2	103.1	23.0	156.7	23.0	208.7	23.7	264.4	26.8
7 R H	16.0	27.0	67.6	30.0	122.2	32.0	174.8	32.4	229.5	32.2
R T	24.7	28.0	77.0	30.5	131.3	33.0	183.3	33.0	238.6	33.0
L H	42.3	25.4	95.7	28.0	148.4	30.3	202.4	29.5	256.5	30.6
L T	51.8	25.5	104.7	28.5	157.7	30.0	211.3	29.5	266.0	29.5
8 R H	19.8	26.5	73.0	27.8	128.1	29.0	185.9	28.3	239.8	29.5
R T	29.2	27.0	82.8	28.5	137.3	30.0	195.3	29.0	249.3	30.2
L H	47.5	25.5	101.7	25.0	159.0	26.4	214.6	26.5	264.0	27.0
L T	57.2	25.5	110.3	25.5	167.7	26.0	223.2	26.0	274.0	27.5
9 R H	14.5	29.0	67.5	29.5	122.5	30.0	176.0	29.1	230.2	28.5
R T	23.2	30.0	76.2	30.0	131.0	31.6	185.0	30.0	239.4	29.5
L H	42.4	26.6	95.9	28.2	148.5	28.7	203.8	26.5	255.7	26.3
L T	51.2	26.5	105.0	27.4	158.1	28.0	213.1	26.5	264.7	25.7
10 R H	15.0	28.2	71.2	29.0	127.2	30.0	182.4	31.3	235.6	31.5
R T	24.8	29.5	80.3	29.5	135.4	30.3	191.0	32.0	245.0	31.7
L H	44.7	26.7	99.7	25.0	156.0	26.4	209.0	28.4	262.3	26.5
L T	53.8	26.5	108.7	24.5	166.0	26.0	217.7	27.8	270.7	25.7

TABLE(40).HEEL & TOE LOCATIONS IN UNOBSTRUCTED PASSAGEWAY.(F2)

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No. F.3 (R) Right foot. (H) Heel. (D) Distance(ins.)
(L) Left foot. (T) Toe. (W) Width(ins.)

TRIAL	Step 1		Step 2		Step 3		Step 4		Step 5	
	D	W	D	W	D	W	D	W	D	W
1 R H	18.0	28.3	75.7	29.1	132.7	27.0	188.2	28.0	244.2	27.0
R T	28.3	29.6	85.7	30.0	142.8	28.3	197.4	29.5	254.1	28.3
L H	47.0	28.0	104.4	27.7	160.4	26.5	215.8	27.2	268.4	23.0
L T	55.8	27.4	114.6	27.0	169.8	26.1	225.5	26.5	277.7	21.7
2 R H	18.0	28.5	74.0	27.7	132.3	27.2	188.6	29.6	243.2	27.6
R T	28.0	29.2	84.4	28.0	141.8	27.9	198.2	29.8	253.8	28.4
L H	47.4	26.4	103.6	26.4	160.4	26.8	216.8	26.6	268.7	25.3
L T	56.2	25.9	112.7	26.0	170.1	26.5	226.6	25.8	278.2	24.5
3 R H	20.6	30.3	79.0	27.8	136.8	28.0	194.5	26.0	251.8	26.7
R T	30.6	30.7	89.6	29.0	147.2	28.4	204.2	27.8	261.5	28.4
L H	49.6	25.4	108.3	27.2	165.4	25.7	222.7	26.1	-	-
L T	59.6	24.7	117.4	26.2	175.8	24.6	233.1	24.5	-	-
4 R H	18.1	29.8	74.1	27.2	130.8	25.5	187.4	26.4	240.7	28.0
R T	27.8	30.1	83.6	28.3	140.7	26.3	196.4	27.0	251.2	28.8
L H	45.2	28.0	102.3	25.5	159.2	23.3	213.4	25.4	268.4	26.3
L T	54.4	27.0	112.5	25.0	168.5	22.7	223.7	24.8	277.8	26.0
5 R H	17.8	30.5	73.6	29.3	130.0	29.5	184.8	28.0	238.0	27.5
R T	27.3	31.1	83.2	30.5	139.8	31.0	194.7	28.0	248.0	28.0
L H	45.3	28.5	102.4	28.3	158.0	27.6	212.2	26.2	265.4	24.2
L T	54.3	27.8	111.7	28.0	167.5	26.7	221.8	25.2	276.2	23.5
6 R H	16.0	28.5	72.1	28.0	127.4	27.8	182.5	28.6	237.5	28.7
R T	26.6	29.4	82.3	29.2	137.6	29.5	192.4	29.8	247.5	29.4
L H	44.2	28.0	99.2	27.0	155.3	28.0	211.4	29.0	266.1	24.5
L T	53.8	27.0	109.0	26.8	164.8	27.0	220.7	27.5	276.2	23.5
7 R H	17.8	27.4	73.8	26.8	130.8	27.7	187.4	26.0	241.8	23.5
R T	27.8	28.4	84.2	27.4	149.8	28.3	197.5	26.7	252.2	24.7
L H	46.3	24.5	102.0	25.3	158.7	24.7	215.0	24.6	268.6	19.8
L T	56.0	23.6	111.8	25.0	168.7	23.9	224.3	22.8	278.5	19.8
8 R H	18.3	27.3	75.3	27.8	132.2	27.8	189.5	29.0	244.4	29.0
R T	27.7	28.1	85.8	29.0	142.7	28.8	198.7	29.5	254.7	31.2
L H	46.4	26.2	103.4	25.8	161.0	26.8	217.0	26.7	-	-
L T	56.2	25.8	113.3	24.8	170.8	26.9	226.6	26.0	-	-
9 R H	17.8	28.0	74.8	27.7	132.7	28.4	190.0	26.4	245.6	26.3
R T	28.0	29.2	84.6	30.1	142.4	29.5	199.0	27.2	255.6	27.0
L H	46.5	27.2	104.2	26.8	161.7	27.0	218.0	23.8	-	-
L T	56.4	26.0	114.3	26.0	171.4	25.8	228.2	23.4	-	-
10 R H	14.8	28.0	71.8	26.5	130.3	28.0	187.5	29.3	243.8	29.1
R T	24.7	28.7	82.0	28.4	140.4	29.5	197.8	30.3	253.7	30.0
L H	43.5	25.8	100.7	26.2	159.3	26.0	216.4	28.5	-	-
L T	52.7	25.0	110.2	25.4	168.8	25.7	225.8	27.3	-	-

TABLE(41).HEEL & TOE LOCATIONS IN UNOBSTRUCTED PASSAGEWAY.(F3)

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No.M.1 (R) Right foot. (H) Heel. (D) Distance(ins.)
(L) Left foot. (T) Toe. (W) Width(ins.)

TRIAL	Step 1		Step 2		Step 3		Step 4		Step 5	
	D	W	D	W	D	W	D	W	D	W
1 R H	44.0	21.5	99.7	22.7	152.7	24.1	205.7	26.5	255.7	24.0
R T	53.5	23.2	109.5	25.0	162.5	27.0	215.6	28.0	265.7	25.0
L H	17.0	14.5	72.5	16.5	127.1	20.0	179.4	20.5	230.6	19.5
L T	27.5	12.5	82.3	15.0	136.8	17.5	187.8	19.0	240.5	18.0
2 R H	47.2	25.2	103.3	25.5	156.8	23.0	211.0	22.5	262.0	24.5
R T	57.0	26.2	113.4	27.0	167.0	24.5	220.7	24.5	271.5	26.5
L H	20.0	18.7	76.2	21.5	130.1	19.7	184.0	19.0	236.6	18.0
L T	29.5	17.5	85.5	20.5	140.2	17.5	192.7	17.0	246.2	16.0
3 R H	45.0	21.6	100.3	22.6	152.8	23.2	206.7	24.0	255.5	25.5
R T	54.7	23.7	110.0	24.5	163.5	26.0	217.0	26.0	265.7	28.5
L H	17.0	15.0	73.0	17.0	126.7	16.5	181.9	17.7	231.8	20.0
L T	27.3	13.5	83.0	16.0	137.3	15.0	190.3	16.3	240.7	18.8
4 R H	46.7	22.7	101.0	23.3	155.2	23.5	205.3	23.0	256.7	25.7
R T	56.5	25.2	110.6	26.5	165.5	25.6	214.9	25.5	267.5	27.5
L H	19.5	17.0	74.7	17.5	127.7	17.5	181.5	18.0	231.6	18.5
L T	29.3	15.7	84.0	15.7	137.8	16.3	191.1	16.0	241.3	16.5
5 R H	44.0	23.5	98.7	23.5	152.6	23.8	208.2	23.5	260.1	25.0
R T	54.4	25.0	108.7	25.0	163.2	26.0	218.3	25.7	269.1	28.0
L H	17.0	17.0	71.3	19.0	126.0	17.0	181.0	18.7	234.5	19.0
L T	27.5	16.2	81.0	18.0	136.2	16.0	190.7	16.5	243.5	16.0
6 R H	41.9	31.0	95.7	30.2	150.0	30.0	203.0	31.2	253.6	32.2
R T	52.0	31.5	106.0	31.5	160.2	32.0	212.4	33.0	265.3	34.0
L H	16.0	25.5	70.5	25.0	124.0	25.5	178.1	25.5	228.9	26.0
L T	28.0	22.7	80.0	24.0	133.8	24.0	187.2	24.3	238.5	23.7
7 R H	43.5	30.7	98.7	30.5	150.4	30.3	204.8	31.5	255.0	32.2
R T	53.7	32.0	109.5	32.0	160.5	33.0	214.7	33.5	266.0	35.5
L H	17.2	24.5	72.9	23.5	126.2	23.7	178.7	26.0	231.2	24.5
L T	28.0	22.5	82.3	22.0	135.6	21.8	188.7	24.0	241.6	22.2
8 R H	42.6	30.5	98.4	30.0	151.3	31.3	203.8	33.0	256.6	33.5
R T	52.7	32.0	109.0	31.5	161.0	33.0	214.0	35.0	267.3	34.5
L H	16.0	23.0	71.4	24.5	126.3	23.7	179.2	27.0	228.6	28.0
L T	26.2	21.2	80.4	22.7	136.2	21.0	187.6	25.0	239.8	25.1
9 R H	43.7	31.8	96.7	32.0	148.5	32.0	201.4	32.2	253.0	33.5
R T	54.2	33.5	106.8	34.1	160.0	34.0	211.7	34.0	263.3	35.6
L H	18.2	24.5	71.2	25.0	122.9	25.5	176.2	26.0	227.3	26.0
L T	28.6	23.2	80.7	23.0	133.3	23.0	185.7	24.6	237.3	24.5
10 R H	43.7	31.3	97.7	29.5	152.7	29.2	206.4	30.5	258.0	30.5
R T	53.7	32.5	107.5	31.0	162.5	31.0	215.7	32.5	270.0	31.5
L H	17.0	24.0	72.0	24.6	126.2	22.0	180.6	24.0	233.5	25.0
L T	27.4	21.5	80.7	22.5	135.7	20.5	189.6	22.2	243.0	22.5

TABLE(42).HEEL & TOE LOCATIONS IN UNOBSTRUCTED PASSAGEWAY.(M.1)

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No.M.2 (R) Right foot. (H) Heel. (D) Distance(ins.)
(L) Left foot. (T) Toe. (W) Width(ins.)

TRIAL	Step 1		Step 2		Step 3		Step 4		Step 5	
	D	W	D	W	D	W	D	W	D	W
1 R H	44.4	29.5	102.9	28.2	160.7	28.0	218.0	27.2	-	-
R T	56.0	31.5	114.4	31.0	172.7	30.0	229.0	29.7	-	-
L H	16.1	24.2	75.1	25.5	133.0	23.6	191.3	24.6	248.3	24.9
L T	28.1	23.5	86.2	24.5	144.3	23.5	202.7	23.5	260.8	24.2
2 R H	19.7	26.0	80.5	24.2	139.7	27.4	200.5	28.4	258.5	26.5
R T	30.0	28.5	91.7	27.5	150.8	29.5	210.7	30.3	269.7	29.0
L H	50.6	21.5	111.2	23.6	170.4	25.2	229.7	25.7	-	-
L T	62.4	20.5	123.3	22.2	182.6	24.6	242.1	23.8	-	-
3 R H	53.4	30.1	116.7	32.0	181.0	30.5	244.8	31.1	-	-
R T	63.7	32.3	128.1	33.8	191.4	33.0	256.4	33.5	-	-
L H	20.8	24.8	85.5	33.6	148.8	28.8	213.0	29.9	-	-
L T	32.7	24.3	96.3	29.5	159.7	28.0	223.2	28.5	-	-
4 R H	18.7	29.5	82.3	28.1	146.3	27.2	208.2	30.0	268.0	31.0
R T	29.2	30.5	93.8	30.5	157.0	29.8	218.5	31.5	280.0	33.0
L H	51.8	25.0	115.3	24.2	178.7	26.9	240.3	28.0	-	-
L T	63.3	24.1	127.3	22.9	190.2	26.4	253.3	26.0	-	-
5 R H	20.2	28.0	83.0	27.7	146.9	28.6	210.0	31.2	-	-
R T	31.2	29.2	95.2	29.2	157.3	30.5	219.9	33.0	-	-
L H	54.5	25.0	115.7	24.8	178.3	27.3	242.8	32.0	-	-
L T	65.3	25.0	127.8	24.6	189.5	27.4	254.4	31.0	-	-
6 R H	52.7	29.8	118.2	31.0	182.7	32.5	247.4	33.5	-	-
R T	63.4	31.7	129.3	33.5	192.7	34.7	258.9	35.4	-	-
L H	21.1	26.5	85.6	27.0	150.2	30.8	214.7	31.6	-	-
L T	32.7	26.0	97.6	26.6	160.8	30.0	225.7	31.0	-	-
7 R H	56.3	33.0	123.7	31.6	190.7	31.0	255.1	28.5	-	-
R T	66.9	34.0	134.4	33.5	200.2	33.0	266.5	31.3	-	-
L H	26.3	25.8	90.4	31.0	157.3	28.5	223.7	27.3	-	-
L T	36.9	26.0	100.5	29.5	167.6	27.3	234.7	26.0	-	-
8 R H	51.7	29.0	116.5	28.0	178.7	29.1	243.3	29.2	-	-
R T	63.7	30.5	127.7	29.6	190.2	30.5	254.5	31.4	-	-
L H	20.9	25.2	85.6	25.7	149.4	23.9	211.8	25.8	-	-
L T	32.3	23.7	97.5	23.3	160.8	22.4	223.6	24.5	-	-
9 R H	55.8	27.6	123.2	26.0	187.2	27.2	250.2	28.0	-	-
R T	67.2	30.4	134.0	28.5	199.0	30.0	261.7	29.3	-	-
L H	23.3	25.3	90.2	23.7	157.3	24.2	221.2	24.0	-	-
L T	34.6	24.7	102.6	21.8	169.0	24.0	233.1	23.0	-	-
10 R H	55.5	29.0	123.5	32.0	191.1	31.0	256.0	30.4	-	-
R T	67.8	30.3	134.8	33.5	202.0	32.5	268.0	32.5	-	-
L H	22.8	26.0	91.4	27.0	158.3	28.4	224.6	26.5	-	-
L T	35.1	24.5	103.4	25.8	163.3	27.0	236.4	25.7	-	-

TABLE(43).HEEL & TOE LOCATIONS IN UNOBSTRUCTED PASSAGEWAY.(M.2)

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Subject No.M.3 (R) Right foot. (H) Heel. (D) Distance(ins.)
(L) Left foot. (T) Toe. (W) Width(ins.)

TRIAL	Step 1		Step 2		Step 3		Step 4		Step 5	
	D	W	D	W	D	W	D	W	D	W
1 R H	51.8	26.9	117.6	25.3	184.5	23.5	248.7	22.5	-	-
R T	61.7	29.5	128.8	27.3	195.7	25.7	260.5	26.0	-	-
L H	18.7	25.2	84.3	24.4	151.2	21.2	216.8	20.0	-	-
L T	28.8	24.5	96.1	23.0	162.8	20.7	228.7	19.4	-	-
2 R H	47.2	30.2	110.2	28.0	175.4	26.7	243.3	24.5	-	-
R T	57.4	32.5	120.6	31.0	186.8	29.4	254.2	28.0	-	-
L H	17.5	25.7	78.3	28.0	141.2	24.7	208.3	24.7	-	-
L T	28.4	25.6	89.6	25.0	152.4	23.7	220.1	23.4	-	-
3 R H	52.0	27.4	118.8	29.5	184.4	27.0	252.0	23.6	-	-
R T	62.6	30.5	129.2	32.2	195.8	29.5	262.3	27.5	-	-
L H	18.4	23.8	83.8	23.7	150.8	25.3	217.2	23.5	-	-
L T	30.0	22.8	96.3	22.4	162.2	23.7	229.3	21.4	-	-
4 R H	48.4	25.3	114.9	25.5	183.7	26.1	251.2	27.0	-	-
R T	57.8	28.5	125.3	29.7	194.0	29.3	260.7	31.0	-	-
L H	16.5	23.7	80.4	23.3	147.8	23.3	215.2	24.7	-	-
L T	28.5	22.0	92.3	22.0	159.2	22.5	227.8	22.8	-	-
5 R H	52.7	22.6	116.8	25.0	183.3	26.3	246.0	26.3	-	-
R T	63.3	25.3	127.7	30.2	194.0	29.2	256.7	30.0	-	-
L H	19.0	24.0	84.2	21.5	149.7	25.6	214.7	25.1	-	-
L T	30.2	21.5	95.5	19.8	161.4	24.0	227.0	23.0	-	-
6 R H	47.3	26.0	112.5	24.9	179.2	26.8	244.7	25.5	-	-
R T	56.6	29.0	122.2	29.5	189.3	29.3	254.8	29.9	-	-
L H	14.2	23.8	78.6	23.1	145.2	24.1	211.7	25.5	-	-
L T	25.8	21.5	91.2	22.2	155.9	23.0	223.6	23.9	-	-
7 R H	47.4	26.7	111.9	25.3	176.7	24.7	240.3	25.7	-	-
R T	57.0	30.3	122.9	29.3	186.8	28.3	250.9	29.5	-	-
L H	15.7	24.7	79.2	25.1	144.2	24.2	208.2	24.4	-	-
L T	27.3	22.6	90.6	22.9	154.4	23.5	218.6	22.5	-	-
8 R H	49.6	27.3	117.7	28.0	187.0	24.0	252.4	26.8	-	-
R T	60.0	30.7	127.4	31.5	198.0	27.0	262.7	30.7	-	-
L H	17.3	24.1	82.2	26.5	151.9	24.5	220.6	24.2	-	-
L T	28.8	22.0	95.7	24.5	164.3	22.5	231.7	22.7	-	-
9 R H	45.8	25.7	111.0	24.2	179.8	27.0	247.2	26.7	-	-
R T	56.3	29.5	121.7	28.3	190.6	31.2	258.7	30.5	-	-
L H	15.2	24.5	79.2	23.0	145.5	24.0	213.6	26.5	-	-
L T	26.5	22.0	90.8	21.6	156.5	22.7	225.7	24.5	-	-
10 R H	48.7	27.5	113.3	27.0	178.7	25.0	243.9	27.1	-	-
R T	59.8	30.5	125.2	31.0	190.5	27.8	256.1	30.5	-	-
L H	16.5	25.0	81.0	25.5	146.7	25.4	211.3	23.8	-	-
L T	28.3	22.3	92.7	23.7	159.0	23.5	223.7	22.5		

TABLE(44).HEEL & TOE LOCATIONS IN UNOBSTRUCTED PASSAGEWAY.(M.3)

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

TEST OF SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS OF TWO CORRELATED SAMPLES.

Sample 1: Means of Undirected Trials (1-5).
Sample 2: Means of Directed Trials (6-10).

Differences (D): Sample (1) from Sample (2).

Formulae used: $t\text{-ratio} = \frac{|\bar{D}|\sqrt{n-1}}{s}$ $\quad s = \sqrt{\frac{\Sigma D^2}{n} - \bar{D}^2}$

Method based on: Moroney, M.J. (1951) Facts from figures. Harmondsworth: Penguin Books. p.229.

STRIDE	MEAN STRIDE LENGTH DIFFERENCES					
	Female F.1		Female F.2		Female F.3	
	(D)	$(D)^2$	(D)	$(D)^2$	(D)	$(D)^2$
1	+0.5	0.25	+1.4	1.96	-1.5	2.25
2	-1.0	1.00	+2.2	4.84	+0.2	0.04
3	+0.6	0.36	+1.0	1.00	-0.3	0.09
4	-0.2	0.04	+0.9	0.81	-0.6	0.36
5	0	0	+1.9	3.61	+1.3	1.69
6	+0.5	0.25	+2.1	4.41	-0.6	0.36
7	-0.5	0.25	+1.1	1.21	+0.3	0.09
8	+1.0	1.00	+1.2	1.44	+0.4	0.16
9	+0.5	0.25	+0.8	0.64	-0.1	0.01
10	+0.7	0.49	+0.8	0.64	-	-
ΣD	2.1	-	13.4	-	0.9	-
ΣD^2	-	3.89	-	20.56	-	5.05
$\bar{D}$	0.21	-	1.34	-	0.1	-
$\bar{D}^2$	0.0441	-	1.7956	-	0.01	-
n	10		10		9	
s	0.5872		0.5044		0.7423	
t-ratio	1.073		7.969		0.3810	

For male Ss. see APPENDIX 1 (TABLE 46).
For extraction of differences (D) between means see RESULTS (TABLES 5-7).

TABLE (45). STATISTICAL TEST OF SIGNIFICANCE OF DIFFERENCES IN MEAN STRIDE LENGTH BETWEEN DIRECTED AND UNDIRECTED TRIALS. (FEMALE SUBJECTS).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

TEST OF SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS OF TWO CORRELATED SAMPLES.

Sample 1: Means of Undirected Trials (1-5)
Sample 2: Means of Directed Trials (6-10)

Differences (D): Sample (1) from Sample (2)

Formulae used: t-ratio $= \frac{|D|\sqrt{n-1}}{s}$ $\quad s = \sqrt{\frac{\Sigma D^2}{n} - \overline{D}^2}$

Method based on: Moroney, M.J. (1951) Facts from figures. Harmondsworth: Penguin Books Ltd. p.229.

STRIDE	MEAN STRIDE LENGTH DIFFERENCES					
	Male M.1		Male M.2		Male M.3	
	(D)	$(D)^2$	(D)	$(D)^2$	(D)	$(D)^2$
1	-1.2	1.44	+4.0	16.00	-2.0	4.00
2	-0.9	0.81	-0.4	0.16	-0.6	0.36
3	-0.1	0.01	+2.0	4.00	+0.6	0.36
4	-0.6	0.36	+2.7	7.29	-0.4	0.16
5	+0.3	0.09	+2.8	7.84	+0.8	0.64
6	-1.4	1.96	+0.9	0.81	-0.5	0.25
7	+1.1	1.21	+3.2	10.24	+0.5	0.25
8	-0.7	0.49	-0.1	0.01	-0.7	0.49
9	+1.8	3.24	-	-	-	-
10	-0.4	0.16	-	-	-	-
ΣD	-2.1	-	15.1	-	-2.3	-
ΣD^2	-	9.77	-	46.35	-	6.51
$\overline{D}$	-0.21	-	1.88	-	-0.29	-
$\overline{D}^2$	0.0441	-	3.534	-	0.0841	-
n	10		8		8	
s	0.9658		1.503		0.8541	
t-ratio	0.6522		3.309		0.8982	

For female Ss. see APPENDIX 1 (TABLE 45).
For extraction of differences (D) between means see RESULTS (TABLES 8-10).

TABLE (46). STATISTICAL TEST OF SIGNIFICANCE OF DIFFERENCES IN MEAN STRIDE LENGTH BETWEEN DIRECTED AND UNDIRECTED TRIALS. (MALE SUBJECTS).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

TEST OF SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS OF TWO CORRELATED SAMPLES.

Sample (1): Means of Undirected Trials (1-5)
Sample (2): Means of Directed Trials (6-10)
Differences (D): Sample (1) from Sample (2).

Formulae used: $t\text{-ratio} = \frac{|\bar{D}|\sqrt{n-1}}{s}$ $\quad s = \sqrt{\frac{\Sigma D^2}{n} - \bar{D}^2}$

Method based on: Moroney, M.J. (1951) Facts from figures. Harmondsworth: Penguin Books. p.229.

STRIDE	DIFFERENCES (D) IN MEAN DISTANCE FROM L.H.WALL (Inches)					
	Female F.1		Female F.2		Female F.3	
	(D)	$(D)^2$	(D)	$(D)^2$	(D)	$(D)^2$
1	-0.9	0.81	+1.9	3.61	-1.5	2.25
2	-1.2	1.44	+0.8	0.64	-1.0	1.00
3	-1.0	1.00	-1.3	1.69	-0.6	0.36
4	-0.4	0.16	-1.3	1.69	-0.8	0.64
5	0	0	-2.0	4.00	+0.6	0.36
6	+0.4	0.16	-1.2	1.44	+0.5	0.25
7	+0.6	0.36	-1.1	1.21	+0.3	0.09
8	+0.7	0.49	-0.2	0.04	+1.2	1.44
9	+0.8	0.64	-0.6	0.36	0	0
10	-0.1	0.01	-1.0	1.00	-	-
ΣD	-1.1	-	-6.0	-	-1.3	-
ΣD^2	-	5.07	-	15.68	-	6.39
$\bar{D}$	-0.11	-	-0.6	-	-0.144	-
$\bar{D}^2$	0.012	-	0.36	-	0.021	-
n	10		10		9	
s	0.7034		1.099		0.8301	
t-ratio	0.4691		0.1638		0.4908	

For male Ss. see APPENDIX 1 (TABLE 48).
For extraction of differences (D) between means see RESULTS (TABLES 13-15).

TABLE (47). STATISTICAL TEST OF SIGNIFICANCE OF DIFFERENCES IN MEAN DISTANCE FROM L.H.WALL BETWEEN DIRECTED AND UNDIRECTED TRIALS. (FEMALE SUBJECTS).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

TEST OF SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS OF TWO CORRELATED SAMPLES.

Sample (1): Means of Undirected Trials (1-5)
Sample (2): Means of Directed Trials (6-10)

Differences (D): Sample (1) from Sample (2).

Formulae used: $t\text{-ratio} = \frac{|\bar{D}|\sqrt{n-1}}{s}$ $s = \sqrt{\frac{\Sigma D^2}{n} - \bar{D}^2}$

Method based on: Moroney,M.J.(1951) Facts from figures. Harmondsworth:Penguin Books. p.229.

STRIDE	DIFFERENCES (D) IN MEAN DISTANCE FROM L.H.WALL (Inches)					
	Male M.1		Male M.2		Male M.3	
	(D)	$(D)^2$	(D)	$(D)^2$	(D)	$(D)^2$
1	+7.5	56.25	+1.5	2.25	-0.8	0.64
2	+7.9	62.41	+1.0	1.00	+0.4	0.16
3	+6.0	36.00	+0.6	0.36	+0.5	0.25
4	+6.6	43.56	+1.5	2.25	-0.5	0.25
5	+5.8	33.64	+0.5	0.25	+0.2	0.04
6	+6.9	47.61	+1.7	2.89	-0.2	0.04
7	+7.0	49.00	-1.2	1.44	+1.3	1.69
8	+7.7	59.29	+0.3	0.09	+1.6	2.56
9	+6.8	46.24	-	-	-	-
10	+7.3	53.29	-	-	-	-
ΣD	69.5	-	4.9	-	2.5	-
ΣD^2	-	487.29	-	10.53	-	5.63
$\bar{D}$	6.95	-	0.61	-	0.31	-
$\bar{D}^2$	48.31	-	0.3721	-	0.0961	-
n	10		8		8	
s	0.6480		0.9716		0.7794	
t-ratio	13.66		1.614		1.018	

For female Ss. see APPENDIX 1 (TABLE 47).
For extraction of differences (D) between means see RESULTS (TABLES 16-18).

TABLE (48).STATISTICAL TEST OF SIGNIFICANCE OF DIFFERENCES IN MEAN DISTANCE FROM L.H.WALL BETWEEN DIRECTED AND UNDIRECTED TRIALS.(MALE SUBJECTS).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

RIGHT FOOT			LEFT FOOT		
(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$	(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$
27.7	1.9	3.61	25.1	0.7	0.49
26.2	0.4	0.16	27.5	1.7	2.89
25.1	0.7	0.49	25.7	0.1	0.01
24.7	1.1	1.21	26.2	0.4	0.16
26.4	0.6	0.36	25.4	0.4	0.16
25.6	0.2	0.04	24.5	1.3	1.69
26.1	0.3	0.09	26.5	0.7	0.49
26.4	0.6	0.36	25.7	0.1	0.01
23.5	2.3	5.29	25.6	0.2	0.04
27.2	1.4	1.96	26.0	0.2	0.04
25.5	0.3	0.09	24.8	1.0	1.00
26.4	0.6	0.36	28.0	2.2	4.84
25.0	0.8	0.64	26.8	1.0	1.00
25.3	0.5	0.25	25.7	0.1	0.01
24.6	1.2	1.44	26.7	0.9	0.81
27.3	1.5	2.25	25.7	0.1	0.01
25.4	0.4	0.16	27.5	1.7	2.89
24.4	1.4	1.96	26.2	0.4	0.16
25.4	0.4	0.16	25.3	0.5	0.25
25.3	0.5	0.25	26.5	0.7	0.49
26.7	0.9	0.81	24.6	1.2	1.44
26.5	0.7	0.49	24.1	1.7	2.89
25.6	0.2	0.04	25.8	0	0
23.3	2.5	6.25	25.2	0.6	0.36
24.1	1.7	2.89	26.9	1.1	1.21
639.7	-	31.61	648.0	-	23.64

Data of mean stride length from RESULTS (TABLE 5).
For comparison of $(\bar{x})$ with inferred (μ) see TABLE (55).

(n) Number of strides = 50

$(\bar{x})$ Mean stride length = $\frac{639.7 + 648.0}{50} = 25.75$

S.D. (Standard deviation of sample) = $\sqrt{\frac{\Sigma(x_i-\bar{x})^2}{n}}$

$= \sqrt{\frac{(31.61 + 23.64)}{50}} = 1.051$

Assuming a Normal Distribution:

5% Conf.L. $(\bar{x}) \pm 1.96$ S.D. = $(\bar{x}) \pm 2.060$ = 23.7 - 27.8

TABLE (49). STATISTICAL VARIATION IN MEAN STRIDE LENGTH IN UNOBSTRUCTED TRIALS (6-10). (F.1).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

RIGHT FOOT			LEFT FOOT		
(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$	(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$
24.8	2.0	4.00	26.5	0.3	0.09
25.4	1.4	1.96	26.6	0.2	0.04
29.5	2.7	7.29	28.0	1.2	1.44
23.8	3.0	9.00	28.0	1.2	1.44
24.9	1.9	3.61	29.3	2.5	6.25
25.7	1.1	1.21	26.2	0.6	0.36
25.3	1.5	2.25	27.9	1.1	1.21
25.4	1.4	1.96	28.1	1.3	1.69
25.0	1.8	3.24	28.6	1.8	3.24
26.5	0.3	0.09	28.5	1.7	2.89
25.7	1.1	1.21	28.0	1.2	1.44
26.5	0.3	0.09	26.3	0.5	0.25
26.7	0.1	0.01	30.6	3.8	14.44
25.8	1.0	1.00	27.1	0.3	0.09
27.1	0.3	0.09	29.7	2.9	7.41
25.3	1.5	2.25	26.7	0.1	0.01
26.0	0.8	0.64	27.8	1.0	1.00
27.3	0.5	0.25	28.3	1.5	2.25
27.2	0.4	0.16	27.9	1.1	1.21
25.7	1.1	1.21	26.6	0.2	0.04
26.5	0.3	0.09	28.7	1.9	3.61
27.2	0.4	0.16	27.2	0.4	0.16
26.6	0.2	0.04	23.5	3.3	10.89
26.4	0.4	0.16	25.2	1.6	2.56
27.0	0.2	0.04	26.2	0.6	0.36
653.3	-	42.01	687.5	-	64.37

Data of mean stride length from RESULTS (TABLE 6).
For comparison of $(\bar{x})$ with inferred (μ) see TABLE (55).

(n) Number of strides $= \underline{50}$

$(\bar{x})$ Mean stride length $= \underline{\frac{653.3 + 687.5}{50} = 26.8}$

S.D. (Standard deviation of sample) $= \sqrt{\frac{\Sigma (x_i-\bar{x})^2}{n}}$

$= \sqrt{\frac{(42.01 + 64.37)}{50}} = \underline{1.458}$

Assuming a Normal Distribution:

5% Conf.Limits $= (\bar{x}) \pm 1.96$ S.D. $= \underline{(\bar{x}) \pm 2.859} = \underline{24.0 - 29.7}$

TABLE (50). STATISTICAL VARIATION IN MEAN STRIDE LENGTH IN UNOBSTRUCTED TRIALS (6-10). (F.2).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

RIGHT FOOT			LEFT FOOT		
(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$	(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$
26.3	1.8	3.24	27.7	0.4	0.16
27.8	0.3	0.09	28.4	0.3	0.09
28.0	0.1	0.01	28.3	0.2	0.04
27.9	0.2	0.04	28.5	0.4	0.16
24.8	3.3	10.89	28.3	0.2	0.04
28.2	0.1	0.01	26.9	1.2	1.44
27.8	0.3	0.09	27.9	0.2	0.04
29.2	1.1	1.21	27.9	0.2	0.04
28.3	0.2	0.04	29.6	1.5	2.25
28.8	0.7	0.49	28.6	0.5	0.25
28.4	0.3	0.09	27.6	0.5	0.25
33.4	5.3	27.09	23.4	4.7	22.09
29.1	1.0	1.00	28.4	0.3	0.09
28.2	0.1	0.01	28.6	0.5	0.25
29.9	1.8	3.24	28.6	0.5	0.25
27.4	0.7	0.49	28.5	0.4	0.16
28.8	0.7	0.49	27.2	0.9	0.81
28.2	0.1	0.01	27.7	0.4	0.16
28.4	0.3	0.09	28.6	0.5	0.25
28.6	0.5	0.25	28.6	0.5	0.25
26.5	1.6	2.56	-	-	-
27.3	0.8	0.64	-	-	-
27.8	0.3	0.09	-	-	-
27.5	0.6	0.36	-	-	-
27.5	0.6	0.36	-	-	-
704.1	-	52.88	559.3	-	29.07

Data of mean stride length from RESULTS (TABLE 7).
For comparison of $(\bar{x})$ with inferred (μ) see TABLE (55).

(n) Number of strides = 45.

$(\bar{x})$ Mean stride length = $\frac{704.1 + 559.3}{45} = 28.1$

S.D. (Standard deviation of sample) = $\sqrt{\frac{\Sigma(x_i-\bar{x})^2}{n}}$

Assuming a Normal Distribution = $\sqrt{\frac{(52.88 + 29.07)}{45}} = 1.350$

5% Conf. Limits $(\bar{x}) \pm 1.96$ S.D. = $(\bar{x}) \pm 2.645$ = 25.5 - 30.8

TABLE (51). STATISTICAL VARIATION IN MEAN STRIDE LENGTH IN UNOBSTRUCTED TRIALS (6-10). (F.3).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

RIGHT FOOT			LEFT FOOT		
(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$	(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$
24.9	1.7	2.89	27.5	0.9	0.81
26.0	0.6	0.36	28.1	1.5	2.25
26.5	0.1	0.01	26.6	0	0
25.5	1.1	1.21	28.9	2.3	5.29
26.5	0.1	0.01	27.7	1.1	1.21
25.5	1.1	1.21	28.4	1.8	3.24
26.5	0.1	0.01	29.0	2.4	5.76
27.8	1.2	1.44	28.3	1.7	2.89
26.2	0.4	0.16	26.6	0	0
26.2	0.4	0.16	27.7	1.1	1.21
27.2	0.6	0.36	28.1	1.5	2.25
24.6	2.0	4.00	26.8	0.2	0.04
24.9	1.7	2.89	27.6	1.0	1.00
26.2	0.4	0.16	26.4	0.2	0.04
24.7	1.9	3.61	28.3	1.7	2.89
25.1	1.5	2.25	27.5	0.9	0.81
26.0	0.6	0.36	28.2	1.6	2.56
25.5	1.1	1.21	27.2	0.6	0.36
25.5	1.1	1.21	26.7	0.1	0.01
25.9	0.7	0.49	29.5	2.9	7.41
25.8	0.8	0.64	26.0	0.6	0.36
24.1	2.5	6.25	26.7	0.1	0.01
27.8	1.2	1.44	25.3	1.3	1.69
25.8	0.8	0.64	25.8	0.8	0.64
25.7	0.9	0.81	27.3	0.7	0.49
646.4	-	33.78	685.2	-	43.22

Data of mean stride length from RESULTS (TABLE 8).
For comparison of $(\bar{x})$ with inferred (μ) see TABLE (55).

(n) Number of strides = 50

$(\bar{x})$ Mean stride length = $\frac{646.4 + 685.2}{50} = 26.63$

S.D. (Standard deviation of sample) = $\sqrt{\frac{\Sigma(x_i-\bar{x})^2}{n}}$

$= \sqrt{\frac{(33.78 + 43.22)}{50}} = 1.241$

Assuming a Normal Distribution
5% Conf.Lim.$(\bar{x})$ - 1.96 SD. = $(\bar{x}) \pm 2.432$ = 24.2 - 29.0

TABLE (52). STATISTICAL VARIATION IN MEAN STRIDE LENGTH IN UNOBSTRUCTED TRIALS (6-10). (M.1).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

RIGHT FOOT			LEFT FOOT		
(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$	(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$
31.1	1.7	2.89	32.9	0.1	0.01
30.0	2.8	7.84	37.6	4.8	23.04
31.1	1.7	2.89	32.6	0.2	0.04
32.6	0.2	0.04	34.9	2.1	4.41
32.8	0	0	34.9	2.1	4.41
32.1	0.7	0.49	33.6	0.8	0.64
33.6	0.8	0.64	33.8	1.0	1.00
30.6	2.2	4.84	33.8	1.0	1.00
37.2	4.4	19.36	29.9	2.9	7.41
36.8	4.0	16.00	30.7	2.1	4.41
32.2	0.6	0.36	31.8	1.0	1.00
33.0	0.2	0.04	33.5	0.7	0.49
29.3	3.5	12.25	33.0	0.2	0.04
29.9	2.9	7.41	34.6	1.8	3.24
35.8	3.0	9.00	31.6	1.2	1.44
33.0	0.2	0.04	32.5	0.3	0.09
31.6	1.2	1.44	33.7	0.9	0.81
31.2	1.6	2.56	33.3	0.5	0.25
28.8	4.0	16.00	34.1	1.3	1.69
31.5	1.3	1.69	33.9	1.1	1.21
644.2	-	105.88	666.7	-	56.63

For comparison of $(\bar{x})$ with inferred (μ) see TABLE (55).
Data of mean stride length from RESULTS (TABLE 9).

(n) Number of strides = 40

$(\bar{x})$ Mean stride length = $\frac{644.2 + 666.7}{40} = \underline{32.77}$

S.D. (Standard deviation of sample) = $\sqrt{\frac{\Sigma(x_i-\bar{x})^2}{n}}$

$= \sqrt{\frac{(105.88 + 56.63)}{40}} = \underline{2.016}$

Assuming a Normal Distribution
5% Conf.Lim. $(\bar{x}) \pm 1.96$ S.D. = $\underline{(\bar{x}) \pm 3.951} = \underline{28.8 - 36.7}$

TABLE (53).. STATISTICAL VARIATION IN MEAN STRIDE LENGTH IN UNOBSTRUCTED TRIALS (6-10). (M.2).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

RIGHT FOOT			LEFT FOOT		
(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$	(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$
31.9	0.2	0.04	26.0	6.1	37.21
30.7	1.4	1.96	27.5	4.6	21.16
31.7	0.4	0.16	29.1	3.0	9.00
30.2	1.9	3.61	26.9	5.2	27.04
31.9	0.2	0.04	28.4	3.7	13.69
32.5	0.4	0.16	33.0	0.9	0.81
32.5	0.4	0.16	32.7	0.6	0.36
33.6	1.5	2.25	34.1	2.0	4.00
31.3	0.8	0.64	33.9	1.8	3.24
32.4	0.3	0.09	32.6	0.5	0.25
33.7	0.6	0.36	33.1	1.0	1.00
32.5	0.4	0.16	31.9	0.2	0.04
34.4	2.3	5.29	35.6	3.5	12.25
34.2	2.1	4.41	34.7	2.6	6.76
31.8	0.3	0.09	33.5	1.4	1.96
32.2	0.1	0.01	33.4	1.3	1.69
32.2	0.1	0.01	31.6	0.5	0.25
31.4	0.7	0.49	33.7	1.6	2.56
33.3	1.2	1.44	34.4	2.3	5.29
32.5	0.4	0.16	32.9	0.8	0.64
646.9	-	21.53	639.0	-	149.20

For comparison of $(\bar{x})$ with inferred (μ) see TABLE (55).
Data of mean stride length from RESULTS (TABLE 10).

(n) Number of strides = 40

$(\bar{x})$ Mean stride length = $\frac{646.9 + 639.0}{40} = \underline{32.1}$

S.D. (Standard deviation of sample) = $\sqrt{\frac{\Sigma(x_i-\bar{x})^2}{n}}$

$= \sqrt{\frac{(21.53 + 149.20)}{40}} = \underline{2.065}$

Assuming a Normal Distribution:

5% Conf.Limits$(\bar{x})$ ± 1.96 S.D. $= \underline{(\bar{x}) \pm 4.049} = \underline{28.0 - 36.2}$

TABLE (54). STATISTICAL VARIATION IN MEAN STRIDE LENGTH IN UNOBSTRUCTED TRIALS (6-10). (M.3).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Ss.	RANGE OF 95% CONFIDENCE INTERVAL FOR MEAN STRIDE LENGTH (Inches)		
	From Estimated Population Mean and Estimated S.D.of Population		From Sample Mean and S.D.of Sample
	Maximum Range	Minimum Range	(TABLES 49-54)
F.1	28.1 - 23.4	27.6 - 23.9	27.8 - 23.7
F.2	30.1 - 23.5	29.3 - 24.3	29.7 - 24.0
F.3	31.2 - 25.0	30.4 - 25.8	30.8 - 25.5
M.1	29.5 - 23.7	28.7 - 24.5	29.0 - 24.2
M.2	37.4 - 28.1	36.1 - 29.4	36.7 - 28.8
M.3	36.9 - 27.3	35.5 - 28.7	36.2 - 28.0

For estimated population mean and estimated S.D of population: See TABLE (62).

FORMULAE USED:

95% Confidence Interval for Sample Mean:

$= \bar{x} \pm 1.96$ (S.D.of Sample)

95% Confidence Interval for Estimated Population Mean:

= Estimated Population Mean $\pm$ 1.96 Estimated S.D. of Population

$= (\bar{x} \pm 1.96$ S.E.$) \pm (1.96$ Estimated S.D.of Population)

Maximum Range:

Between $(\bar{x} + 1.96$ S.E.$) + (1.96$ Est.S.D.of Population) and $(\bar{x} - 1.96$ S.E.$) - (1.96$ Est.S.D.of Population).

Minimum Range:

Between $(\bar{x} - 1.96$ S.E.$) + (1.96$ Est.S.D.of Population) and $(\bar{x} + 1.96$ S.E.$) - (1.96$ Est.S.D.of Population).

TABLE (55). COMPARISON OF 95% CONFIDENCE INTERVALS OF SAMPLE MEANS WITH THOSE OF ESTIMATED POPULATION MEANS: STRIDE LENGTH IN UNOBSTRUCTED TRIALS(6-10).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

LEFT FOOT			RIGHT FOOT		
(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$	(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$
22.5	2.0	4.00	25.8	2.0	4.00
24.4	0.1	0.01	28.4	0.6	0.36
24.3	0.2	0.04	28.3	0.5	0.25
22.9	1.6	2.56	28.5	0.7	0.49
24.1	0.4	0.16	27.9	0.1	0.01
24.3	0.2	0.04	26.7	1.1	1.21
25.4	0.9	0.81	28.0	0.2	0.04
23.9	0.6	0.36	26.7	1.1	1.21
25.9	1.4	1.96	28.0	0.2	0.04
24.3	0.2	0.04	26.8	1.0	1.00
24.0	0.5	0.25	26.7	1.1	1.21
26.3	1.8	3.24	29.0	1.2	1.44
24.5	0	0	27.4	0.4	0.16
25.0	0.5	0.25	30.0	2.2	4.84
24.4	0.1	0.01	27.8	0	0
23.6	0.9	0.81	26.6	1.2	1.44
26.3	1.8	3.24	29.4	1.6	2.56
26.3	1.8	3.24	28.9	1.1	1.21
24.3	0.2	0.04	27.3	0.5	0.25
25.1	0.6	0.36	27.5	0.3	0.09
21.6	2.9	7.41	26.5	1.3	1.69
23.5	1.0	1.00	28.3	0.5	0.25
25.1	0.6	0.36	28.5	0.7	0.49
24.9	0.6	0.36	27.9	0.1	0.01
25.0	0.5	0.25	29.0	1.2	1.44
611.9	-	30.80	695.9	-	25.69

Distance of footprints from L.H.wall (x_i) from RESULTS: (TABLE 13).

Mean distance from wall $(\bar{x})$

Left $= \frac{611.9}{25} = \underline{24.5}$ Right $= \frac{695.9}{25} = \underline{27.8}$

Estimated Standard Deviation of Population $\sqrt{\frac{\Sigma(x_i-\bar{x})^2}{(n-1)}}$ (because it is small sample: $n < 30$).

Left $= \sqrt{\frac{30.80}{24}} = \underline{1.133}$ Right $= \sqrt{\frac{25.69}{24}} = \underline{1.035}$

95% Range of "t" (24 d.f.)(2-tailed test) = 2.06(Est.S.D)

Left $= 24.5 \pm 2.334$ Right $= 27.8 \pm 2.131$

$= \underline{26.8 - 22.2}$ $= \underline{29.9 - 25.7}$

TABLE (56).STATISTICAL VARIATION IN MEAN DISTANCE FROM L.H.WALL IN UNOBSTRUCTED TRIALS (6-10). (F.1).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

LEFT FOOT			RIGHT FOOT		
(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$	(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$
23.0	3.5	12.25	27.4	2.0	4.00
25.4	1.1	1.21	27.5	1.9	3.61
25.5	1.0	1.00	26.7	2.7	7.29
26.5	0	0	29.5	0.1	0.01
26.6	0.1	0.01	28.8	0.6	0.36
23.4	3.1	9.61	26.2	3.2	10.24
28.3	1.8	3.24	30.3	0.9	0.81
25.3	1.2	1.44	28.2	1.2	1.44
27.8	1.3	1.69	29.8	0.4	0.16
24.8	1.7	2.89	29.3	0.1	0.01
22.9	3.6	12.96	26.3	3.1	9.61
30.2	3.7	13.69	32.5	3.1	9.61
26.2	0.3	0.09	29.5	0.1	0.01
28.4	1.9	3.61	30.8	1.4	1.96
26.2	0.3	0.09	30.2	0.8	0.64
24.0	2.5	6.25	27.2	2.2	4.84
29.5	3.0	9.00	32.7	3.3	10.89
26.3	0.2	0.04	28.7	0.7	0.49
26.5	0	0	29.6	0.2	0.04
28.1	1.6	2.56	31.7	2.3	5.29
26.9	0.4	0.16	27.8	1.6	2.56
30.1	3.6	12.96	32.6	3.2	10.24
27.3	0.8	0.64	29.9	0.5	0.25
26.0	0.5	0.25	29.0	0.4	0.16
26.1	0.4	0.16	31.6	2.2	4.84
661.6	-	95.80	733.8	-	89.32

Distance of footprints from L.H.wall (x_i) from RESULTS: (TABLE 14).

Mean distance from wall $(\bar{x})$

Left = $\frac{661.6}{25}$ = 26.5 Right = $\frac{733.8}{25}$ = 29.4

Estimated Standard Deviation of Population $\sqrt{\frac{\Sigma(x_i-\bar{x})^2}{(n-1)}}$ (because it is small sample: $n<30$).

Left = $\sqrt{\frac{95.80}{24}}$ = 1.998 Right = $\sqrt{\frac{89.32}{24}}$ = 1.930

95% Range of "t" (24 d.f.)(2-tailed test) = 2.06(Est.S.D.)

Left = 26.5 ± 4.116 Right = 29.4 ± 3.975

= 30.6 - 22.4 = 33.4 - 25.4

TABLE (57).STATISTICAL VARIATION IN MEAN DISTANCE FROM L.H.WALL IN UNOBSTRUCTED TRIALS (6-10). (F.2).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

LEFT FOOT			RIGHT FOOT		
(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$	(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$
27.5	1.3	1.69	28.9	0.7	0.49
24.0	2.2	4.84	27.9	0.3	0.09
26.0	0.2	0.04	27.7	0.5	0.25
26.6	0.4	0.16	28.7	0.5	0.25
25.4	0.8	0.64	28.3	0.1	0.01
26.9	0.7	0.49	28.6	0.4	0.16
25.2	1.0	1.00	27.1	1.1	1.21
25.3	0.9	0.81	28.4	0.2	0.04
26.4	0.2	0.04	28.9	0.7	0.49
25.8	0.4	0.16	27.5	0.7	0.49
27.5	1.3	1.69	28.6	0.4	0.16
24.3	1.9	3.61	28.0	0.2	0.04
26.8	0.6	0.36	28.3	0.1	0.01
26.4	0.2	0.04	28.9	0.7	0.49
25.8	0.4	0.16	28.8	0.6	0.36
28.3	2.1	4.41	29.2	1.0	1.00
28.7	2.5	6.25	26.4	1.8	3.24
26.4	0.2	0.04	29.2	1.0	1.00
23.6	2.6	6.76	26.8	1.4	1.96
27.9	1.7	2.89	29.8	1.6	2.56
			29.1	0.9	0.81
			24.1	4.1	16.81
			30.1	1.9	3.61
			26.6	1.6	2.56
			29.5	1.3	1.69
524.8	-	36.08	705.4	-	39.78

Distance of footprints from L.H.wall (x_i) from RESULTS: (TABLE 15).

Mean distance from wall $(\bar{x})$

Left $= \frac{524.8}{20} = 26.2$ Right $= \frac{705.4}{25} = 28.2$

Estimated Standard Deviation of Population $\sqrt{\frac{\Sigma(x_i-\bar{x})^2}{(n-1)}}$ (because it is small sample: $n < 30$).

Left $= \sqrt{\frac{36.08}{19}} = 1.378$ Right $= \sqrt{\frac{39.78}{24}} = 1.287$

95% Range of "t"(19d.f.)(2-tailed test) =2.09(Est.S.D.)
95% Range of "t"(24d.f.) .. =2.06(Est.S.D.)

Left $= 26.2 \pm 2.879$ Right $= 28.2 \pm 2.651$

$= 29.1 - 23.3$ $= 30.9 - 25.6$

TABLE (58).STATISTICAL VARIATION IN MEAN DISTANCE FROM L.H.WALL IN UNOBSTRUCTED TRIALS(6-10). (F.3).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

LEFT FOOT			RIGHT FOOT		
(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$	(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$
24.1	0.2	0.04	31.2	0.9	0.81
23.5	0.4	0.16	31.6	0.5	0.25
22.1	1.8	3.24	31.2	0.9	0.81
23.9	0	0	32.7	0.6	0.36
22.7	1.2	1.44	31.9	0.2	0.04
24.5	0.6	0.36	30.8	1.3	1.69
22.7	1.2	1.44	31.3	0.8	0.64
23.6	0.3	0.09	30.7	1.4	1.96
24.0	0.1	0.01	33.1	1.0	1.00
23.6	0.3	0.09	30.2	1.9	3.61
24.7	0.8	0.64	31.0	1.1	1.21
22.7	1.2	1.44	31.7	0.4	0.16
22.4	1.5	2.25	32.1	0	0
24.2	0.3	0.09	33.0	0.9	0.81
21.3	2.6	6.76	30.1	2.0	4.00
24.9	1.0	1.00	32.1	0	0
25.0	1.1	1.21	32.5	0.4	0.16
26.0	2.1	4.41	34.0	1.9	3.61
25.3	1.4	1.96	33.1	1.0	1.00
23.1	0.8	0.64	31.5	0.6	0.36
24.8	0.9	0.81	33.1	1.0	1.00
23.4	0.5	0.25	33.8	1.7	2.89
26.5	2.6	6.76	34.0	1.9	3.61
25.3	1.4	1.96	34.5	2.4	5.76
23.7	0.2	0.04	31.0	1.1	1.21
589.1	-	37.09	802.2	-	36.95

Distance of footprints from L.H.wall (x_i) from RESULTS: (TABLE 16).

Mean distance from wall $(\bar{x})$

Left $= \frac{589.1}{25} = \underline{23.9}$ Right $= \frac{802.2}{25} = \underline{32.1}$

Estimated Standard Deviation of Population $\sqrt{\frac{\Sigma(x_i-\bar{x})^2}{(n-1)}}$ (because it is small sample: $n < 30$).

Left $= \sqrt{\frac{37.09}{24}} = \underline{1.243}$ Right $= \sqrt{\frac{36.95}{24}} = \underline{1.241}$

95% Range of "t" (24 d.f.)(2-tailed test) = 2.06(Est.S.D.)

Left $= 23.9 \pm 2.56 = \underline{26.5 — 21.3}$ Right $= 32.1 \pm 2.56 = \underline{34.7 — 29.5}$

TABLE (59).STATISTICAL VARIATION IN MEAN DISTANCE FROM L.H.WALL IN UNOBSTRUCTED TRIALS (6-10).. (M.1).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

LEFT FOOT			RIGHT FOOT		
(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$	(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$
26.2	0	0	30.7	0.1	0.01
25.9	0.3	0.09	33.5	2.7	7.29
24.4	1.8	3.24	29.7	1.1	1.21
25.0	1.2	1.44	29.0	1.8	3.24
25.2	1.0	1.00	29.6	1.2	1.44
26.8	0.6	0.36	32.2	1.4	1.96
30.2	4.0	16.00	32.5	1.7	2.89
24.5	1.7	2.89	28.8	2.0	4.00
22.7	3.5	12.25	27.2	3.6	12.96
26.4	0.2	0.04	32.7	1.9	3.61
30.4	4.2	17.64	33.6	2.8	7.84
27.9	1.7	2.89	32.0	1.2	1.44
23.1	3.1	9.61	29.8	1.0	1.00
24.1	2.1	4.41	28.6	2.2	4.84
27.7	1.5	2.25	31.7	0.9	0.81
31.3	5.1	26.01	34.4	3.6	12.96
26.6	0.4	0.16	29.9	0.9	0.81
25.1	1.1	1.21	30.3	0.5	0.25
23.5	2.7	7.29	28.6	2.2	4.84
26.1	0.1	0.01	31.4	0.6	0.36
523.1	-	108.79	616.2	-	73.76

Distance of footprints from L.H.wall (x_i) from RESULTS: (TABLE 17).

Mean distance from wall $(\bar{x})$

Left $= \frac{523.1}{20} = \underline{26.2}$ Right $= \frac{616.2}{20} = \underline{30.8}$

Estimated Standard Deviation of Population $\sqrt{\frac{\Sigma(x_i-\bar{x})^2}{(n-1)}}$ (because it is small sample: $n < 30$).

Left $= \sqrt{\frac{108.79}{19}} = \underline{2.393}$ Right $= \sqrt{\frac{73.76}{19}} = \underline{1.970}$

95% Range of "t"(19 d.f.)(2-tailed test) = 2.09(Est.S.D.)

Left $= 26.2 \pm 5.00$ Right $= 30.8 \pm 4.11$

$= \underline{31.2 - 21.2}$ $= \underline{34.9 - 26.7}$

TABLE (60).STATISTICAL VARIATION IN MEAN DISTANCE FROM L.H.WALL IN UNOBSTRUCTED TRIALS (6-10). (M.2).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

LEFT FOOT			RIGHT FOOT		
(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$	(x_i)	$(x_i-\bar{x})$	$(x_i-\bar{x})^2$
22.1	1.6	2.56	27.5	0.4	0.16
23.7	0	0	28.5	0.6	0.36
23.0	0.7	0.49	29.0	1.1	1.21
23.3	0.4	0.16	27.6	0.3	0.09
23.6	0.1	0.01	29.0	1.1	1.21
22.6	1.1	1.21	27.2	0.7	0.49
24.0	0.3	0.09	27.3	0.6	0.36
25.5	1.8	3.24	29.7	1.8	3.24
22.3	1.4	1.96	26.3	1.6	2.56
24.6	0.9	0.81	29.0	1.1	1.21
23.6	0.1	0.01	28.0	0.1	0.01
23.8	0.1	0.01	26.5	1.4	1.96
23.5	0.2	0.04	25.5	2.4	5.76
23.3	0.4	0.16	29.1	1.2	1.44
24.5	0.8	0.64	26.4	1.5	2.25
24.7	1.0	1.00	27.7	0.2	0.04
23.5	0.2	0.04	27.6	0.3	0.09
23.4	0.3	0.09	28.7	0.8	0.64
25.5	1.8	3.24	28.6	0.7	0.49
23.2	0.5	0.25	28.6	0.7	0.49
473.7	-	16.01	557.8	-	24.08

Distance of footprints from L.H.wall (x_i) from RESULTS: (TABLE 18).

Mean distance from wall $(\bar{x})$

$$\text{Left} = \frac{473.7}{20} = \underline{23.7} \qquad \text{Right} = \frac{557.8}{20} = \underline{27.9}$$

Estimated Standard Deviation of Population $\sqrt{\frac{\Sigma(x_i-\bar{x})^2}{(n-1)}}$ (because it is small sample: $n < 30$).

$$\text{Left} = \sqrt{\frac{16.01}{19}} = \underline{0.9158} \qquad \text{Right} = \sqrt{\frac{24.08}{19}} = \underline{1.126}$$

95% Range of "t" (19 d.f.)(2-tailed test) = 2.09(Est.S.D.)

$$\text{Left} = 23.7 \pm 1.92 = \underline{25.6 - 21.8} \qquad \text{Right} = 27.9 \pm 2.35 = \underline{26.4 - 21.7}$$

TABLE (61).STATISTICAL VARIATION IN MEAN DISTANCE FROM L.H.WALL IN UNOBSTRUCTED TRIALS (6-10).. (M.3).

APPENDIX 1. EXPERIMENT (PART 1): UNOBSTRUCTED PASSAGEWAY

Ss.	Sample Size	Sample Mean	S.D.of Sample	Estimated S.D. of Population	Estimated Standard Error of Mean	Estimated Population Mean *
	(n)	$(\bar{x})$	$\sqrt{\frac{\Sigma(x_i-\bar{x})^2}{n}}$	$\sqrt{\frac{\Sigma(x_i-\bar{x})^2}{(n-1)}}$	$\sqrt{\frac{\Sigma(x_i-\bar{x})^2}{n(n-1)}}$	$\bar{\bar{x}} \pm 2$ S.E.
F.1	50	25.75	1.051	1.062	0.1502	$\bar{\bar{x}} \pm 0.30$
F.2	50	26.81	1.458	1.473	0.2084	$\bar{\bar{x}} \pm 0.42$
F.3	45	28.06	1.350	1.365	0.2032	$\bar{\bar{x}} \pm 0.40$
M.1	50	26.63	1.241	1.254	0.1772	$\bar{\bar{x}} \pm 0.36$
M.2	40	32.77	2.016	2.041	0.3228	$\bar{\bar{x}} \pm 0.64$
M.3	40	32.14	2.065	2.091	0.3308	$\bar{\bar{x}} \pm 0.66$

MEAN STRIDE LENGTH (Inches)

Ss.	Sample Size [<30]	Sample Mean	S.D.of Sample	Estimated S.D. of Population	Estimated Standard Error of Mean	Estimated Population Mean *
F.1	L 25	24.5	-	1.133	0.2266	$\bar{\bar{x}} \pm 0.46$
	R 25	27.8	-	1.035	0.2069	$\bar{\bar{x}} \pm 0.42$
F.2	L 25	26.5	-	1.998	0.3996	$\bar{\bar{x}} \pm 0.80$
	R 25	29.4	-	1.930	0.3859	$\bar{\bar{x}} \pm 0.78$
F.3	L 20	26.2	-	1.378	0.3081	$\bar{\bar{x}} \pm 0.62$
	R 25	28.2	-	1.287	0.2575	$\bar{\bar{x}} \pm 0.52$
M.1	L 25	23.9	-	1.243	0.2486	$\bar{\bar{x}} \pm 0.50$
	R 25	32.1	-	1.241	0.2481	$\bar{\bar{x}} \pm 0.50$
M.2	L 20	26.2	-	2.393	0.5351	$\bar{\bar{x}} \pm 1.08$
	R 20	30.8	-	1.970	0.4406	$\bar{\bar{x}} \pm 0.88$
M.3	L 20	23.7	-	0.916	0.2052	$\bar{\bar{x}} \pm 0.42$
	R 20	27.9	-	1.126	0.2517	$\bar{\bar{x}} \pm 0.50$

MEAN DISTANCE OF FOOTSTEP FROM L.H.WALL(Inches)

*If N(0,1); P_{95} that population mean (μ)is within approximately 2-Standard Errors of sample mean ($\bar{x}$).

TABLE (62). COMPARISON OF SAMPLE MEAN ($\bar{x}$)WITH INFERRED POPULATION MEAN FOR STRIDE LENGTH AND DISTANCE FROM WALL IN UNOBSTRUCTED TRIALS (6-10).

APPENDIX No. 2

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

SUBJECT No.	*LOCATION OF HEELMARK (3) IN UNOBSTRUCTED TRIALS (1-10).					MEAN
M.1	(1-5) 72.5	76.2	73.0	74.7	71.3	72.57
	(6-10) 70.5	72.9	71.4	71.2	72.0	
M.2	(1-5) 75.1	80.5	85.5	82.3	83.9	85.00
	(6-10) 85.6	90.4	85.6	90.2	91.4	
M.3	(1-5) 84.3	78.3	83.8	80.4	84.2	81.12
	(6-10) 78.6	79.2	82.2	79.2	81.0	
F.1	(1-5) 67.0	65.3	68.0	68.6	72.4	68.34
	(6-10) 68.5	71.2	67.5	65.2	69.7	
F.2	(1-5) 59.2	62.1	67.9	69.0	66.3	67.11
	(6-10) 67.3	67.6	73.0	67.5	71.2	
F.3	(1-5) 75.7	74.0	79.0	74.1	73.6	74.42
	(6-10) 72.1	73.8	75.3	74.8	71.8	

SUBJECT No.	*LOCATION OF HEELMARK (7) IN UNOBSTRUCTED TRIALS (1-10).					MEAN
M.1	(1-5)179.4	184.0	181.9	181.5	181.0	180.06
	(6-10)178.1	178.7	179.2	176.2	180.6	
M.2	(1-5)191.3	200.5	213.0	208.2	210.0	212.00
	(6-10)214.7	223.7	211.8	221.2	224.6	
M.3	(1-5)216.8	208.3	217.2	215.2	214.7	213.76
	(6-10)211.7	208.2	220.6	213.6	211.3	
F.1	(1-5)168.8	168.5	171.7	171.3	175.0	170.52
	(6-10)170.5	171.5	169.3	166.3	172.3	
F.2	(1-5)155.0	160.2	171.4	178.0	174.2	173.06
	(6-10)172.7	174.8	185.9	176.0	182.4	
F.3	(1-5)188.2	188.6	194.5	187.4	184.8	188.04
	(6-10)182.5	187.4	189.5	190.0	187.5	

Dimensions in Inches.

*Data obtained from APPENDIX 1 (TABLES 39-44;Cols.,Step 2 & 4D).

Posts were set with near edge at Mean Heelmark position.

TABLE (63).LOCATION OF OBSTACLE MOUNTING POSTS IN TRIALS WITH OBSTACLES AT MEAN HEELMARKS (3) AND (7).

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.1

TRIAL	FOOTSTEP SEQUENCE 1	2	3	4	5	6	7	8	9	10
TWDR	+2.4	0	-1.4	+1.6	+0.5	-1.2	-0.1	-0.8	-1.5	-1.0
TWDL	+2.8	+0.2	-0.1	+0.3	-0.1	-1.2	-1.4	-1.0	+0.2	-0.8
TWCR	-3.1	-3.4	-1.6	-2.0	-1.6	+0.1	-1.0	-0.7	-1.0	-1.3
TWCL	-1.0	-2.8	-2.1	-1.0	+0.3	-0.8	-0.2	+0.5	-0.8	-0.2
BWDR	+2.0	-0.4	0	-0.3	-0.1	-2.8	-0.2	-1.9	-2.3	-1.3
BWDL	+1.5	+0.2	+0.3	+0.5	-1.2	-0.7	-1.0	-1.9	+0.4	-0.7
BWCR	-2.9	-3.9	-0.5	-0.6	-1.6	0	-1.2	-0.5	-1.4	-0.5
BWCL	-1.5	-2.8	-1.1	-0.5	-1.0	+0.6	+0.5	+0.2	-0.2	-1.4
TNDR	+1.8	+1.1	+1.0	+0.9	+1.3	+0.9	+0.3	+0.2	+0.4	-0.6
TNDL	+1.0	+0.3	+0.1	+1.2	+0.8	+0.7	+0.4	+0.6	+0.2	-0.8
TNCR	+0.6	-0.1	0	+0.5	+0.3	+0.7	+0.5	+0.2	+0.6	-1.1
TNCL	+0.5	0	-0.7	+0.7	-0.3	+0.1	-0.5	-0.3	-0.3	-1.5
BNDR	+2.4	-0.2	+0.6	+1.3	+0.1	+0.2	+0.5	-0.4	+0.3	-0.8
BNDL	+1.5	+0.4	-0.8	+1.0	0	+0.4	-0.2	+0.1	-0.5	-0.8
BNCR	+2.9	+0.4	+1.0	+1.1	+0.3	+0.9	+0.2	+0.1	+0.5	-1.0
BNCL	+2.6	+0.5	0	+1.0	+1.5	+0.3	+0.4	-0.9	+1.5	-1.1

Dimensions in Inches.

Changes in stride length are obtained by subtracting the overall mean stride length (25.8 inches) of Subject (F.1) in Unobstructed Trials (6-10) from the corresponding mean distances recorded for each stride in trials with obstacles.

For mean stride length in trials with obstacles see APPENDIX 2 (TABLE 70).

For diagrams of changes in mean stride length corresponding to these tables see RESULTS (FIGS.42-45).

For S.D.(σ) mean stride length in Unobstructed Trials (6-10) see APPENDIX 1 (TABLE 49).

Positive differences indicate that longer strides were taken in Trials with Obstacles than in empty passageway.

TABLE (64). MEAN STRIDE LENGTH FROM START IN TRIALS WITH OBSTACLES MINUS THE OVERALL MEAN STRIDE LENGTH IN TRIALS IN THE UNOBSTRUCTED PASSAGEWAY.(F.1)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.2

	FOOTSTEP SEQUENCE									
TRIAL	1	2	3	4	5	6	7	8	9	10
TWDR	-0.9	-1.7	-1.2	-0.3	-2.2	-2.6	-0.6	-1.9	-2.7	-1.4
TWDL	-0.9	-0.7	-1.6	-0.3	-2.0	-1.4	-2.3	-4.3	+0.1	-1.7
TWCR	-1.3	-4.6	-2.0	-1.0	-3.7	-2.0	-0.7	-0.2	-1.1	-0.1
TWCL	-4.3	-2.2	-3.4	-1.6	-1.3	-1.4	-1.1	-0.4	-1.4	+0.6
BWDR	-0.9	-1.2	-0.8	-0.8	-1.2	-1.5	-1.2	-1.4	-2.9	+0.9
BWDL	-1.5	-1.0	-1.4	-0.4	-1.7	-1.1	-1.1	-1.4	-0.2	-0.6
BWCR	-1.0	-3.5	-2.3	-2.4	-1.5	+0.7	-2.8	-0.5	-2.3	+0.2
BWCL	-3.4	-1.5	-2.8	+0.1	-0.4	-1.3	-0.7	-0.9	-0.5	+0.1
TNDR	-1.6	-1.0	-1.5	+0.8	-0.9	+0.2	+0.2	+0.1	+0.9	-0.2
TNDL	-0.7	-0.2	-1.2	+1.1	-0.7	+1.7	-0.7	+0.3	-0.2	0
TNCR	-1.7	+0.1	-0.5	+1.7	-1.1	+0.4	-0.2	+0.4	-0.1	+0.6
TNCL	-0.8	+0.2	-1.0	+1.4	-0.3	+0.5	-0.9	-0.2	-0.5	+0.8
BNDR	-2.1	-0.3	-1.7	+1.4	-0.5	-0.2	-0.1	+0.3	-0.5	+0.1
BNDL	-0.6	-0.3	-0.7	+0.4	-0.4	+0.5	+0.2	+0.9	+0.8	+0.9
BNCR	-0.3	-0.2	-0.2	+0.3	-0.3	+1.1	-0.1	+0.8	+0.4	+0.3
BNCL	-1.6	-0.3	-0.9	+1.1	-0.9	+0.1	-0.2	+0.1	+4.6	-3.7

Dimensions in Inches.

Changes in stride length are obtained by subtracting the overall mean stride length (26.8 inches) of Subject (F.2) in Unobstructed Trials (6-10) from the corresponding mean distances recorded for each stride in trials with obstacles.

For mean stride length in trials with obstacles see APPENDIX 2 (TABLE 71).

For diagrams of changes in mean stride length corresponding to these tables see RESULTS (FIGS.46-49).

For S.D.(σ) mean stride length in Unobstructed Trials(6-10) see APPENDIX 1 (TABLE 50).

Positive differences indicate that longer strides were taken in Trials with Obstacles than in empty passageway.

TABLE (65).MEAN STRIDE LENGTH FROM START IN TRIALS WITH OBSTACLES MINUS THE OVERALL MEAN STRIDE LENGTH IN TRIALS IN THE UNOBSTRUCTED PASSAGEWAY. (F.2).

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.3

	FOOTSTEP SEQUENCE									
TRIAL	1	2	3	4	5	6	7	8	9	10
TWDR	-2.3	-1.7	-0.6	-0.9	-1.5	-1.8	-3.5	-4.2	-3.2	+0.2
TWDL	-1.8	-1.1	-0.3	0	-1.9	-1.5	-3.8	-2.1	-0.5	+1.4
TWCR	-4.0	-5.4	-4.5	-2.9	-1.3	-0.6	+0.4	0	-0.3	-0.5
TWCL	-3.3	-3.5	-4.9	-3.0	-0.6	+0.1	-0.1	-0.2	+0.2	+0.2
BWDR	-3.8	-1.3	-0.5	-1.0	-2.0	-2.8	-2.4	-3.2	-1.3	-1.3
BWDL	-1.8	-1.2	-0.9	-2.0	+0.2	-1.1	-2.3	-1.4	-1.0	-0.9
BWCR	-4.6	-6.5	-4.9	-3.9	-1.7	-0.8	+0.2	-0.4	-0.4	-0.4
BWCL	-4.3	-2.7	-5.4	+1.8	-3.0	-0.2	-0.1	-0.1	+0.2	+0.2
TNDR	-2.2	-0.9	-0.2	-0.2	-0.4	-0.7	-0.6	-0.7	-0.9	-0.7
TNDL	-2.8	-0.9	-0.9	+0.3	-0.7	-1.8	-1.1	-0.7	-1.3	-0.7
TNCR	-5.0	-2.5	-2.1	+1.5	+0.2	+0.6	-2.2	+2.1	-0.6	0
TNCL	-4.6	-2.9	-1.1	-0.5	+0.4	-0.1	-0.1	+3.4	+3.4	-3.2
BNDR	-4.0	-1.9	-0.7	+0.7	-2.3	-1.4	-0.3	-1.8	-1.5	-0.7
BNDL	-1.3	-0.8	-0.4	-0.1	-0.1	-0.9	-1.2	-0.6	-1.4	-0.9
BNCR	-4.0	-2.4	+0.1	-0.5	+0.1	-0.7	0	-0.3	-1.3	-1.6
BNCL	-4.7	-2.6	-0.4	+0.6	-0.1	-0.1	-0.4	+0.1	0	-0.6

Dimensions in Inches.

Changes in stride length are obtained by subtracting the overall mean stride length (28.1 inches) of Subject (F.3) in Unobstructed Trials (6-10) from the corresponding mean distances recorded for each stride in trials with obstacles.

For mean stride length in trials with obstacles see APPENDIX 2 (TABLE 72).

For diagrams of changes in mean stride length corresponding to these tables see RESULTS (FIGS. 50-53).

For S.D.(σ) mean stride length in Unobstructed Trials(6-10) see APPENDIX 1 (TABLE 51).

Positive differences indicate that longer strides were taken in Trials with Obstacles than in empty passageway.

TABLE (66).MEAN STRIDE LENGTH FROM START IN TRIALS WITH OBSTACLES MINUS THE OVERALL MEAN STRIDE LENGTH IN TRIALS IN THE UNOBSTRUCTED PASSAGEWAY.(F.3).

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.1

TRIAL	FOOTSTEP SEQUENCE									
	1	2	3	4	5	6	7	8	9	10
TWDR	-1.4	+1.0	+0.8	+2.3	+0.8	-1.5	-0.4	-2.1	-0.5	+1.0
TWDL	-0.4	+1.2	+1.3	+1.4	+0.6	+0.2	-0.3	-0.2	-0.1	+0.3
TWCR	-3.2	-1.4	-0.6	+1.7	-1.0	+1.6	+1.7	+2.2	+1.6	+1.1
TWCL	-2.7	-0.6	-3.0	+0.3	+1.3	+0.4	+1.2	+0.4	+0.9	+0.8
BWDR	+0.3	+2.0	+0.2	+1.3	+0.2	-0.7	-1.1	+0.2	-1.7	+1.1
BWDL	-0.8	+0.8	+0.7	+0.7	0	+0.1	-1.3	-0.7	-0.3	-0.3
BWCR	-3.3	-2.5	+0.3	-0.4	-1.4	+0.7	+0.8	+1.1	+3.3	-1.1
BWCL	-3.0	-5.0	-1.2	+1.1	+2.0	+1.0	+1.7	+0.6	+0.7	+0.8
TNDR	+0.2	+2.8	+1.3	+2.5	+1.9	+2.2	+1.5	+1.7	+0.6	-2.6
TNDL	-0.5	+1.4	-0.3	+2.7	+0.4	+0.8	-0.1	+0.4	+0.3	-0.6
TNCR	-1.4	-0.5	+1.0	+1.1	+0.3	+0.5	+0.8	+0.4	+0.6	+0.1
TNCL	-1.3	+1.7	+1.9	+2.1	+1.5	+1.2	+0.8	+1.1	+0.2	-3.4
BNDR	-0.1	+2.1	+1.0	+2.0	+1.2	+0.8	+0.6	0	+0.8	+0.7
BNDL	-0.2	+1.6	+0.7	+0.6	+1.3	+0.7	+1.0	+0.9	+0.2	+4.1
BNCR	-1.7	+1.8	+1.6	+1.7	+1.0	+1.0	+1.4	+1.5	+1.3	-4.2
BNCL	-0.5	+1.9	+1.4	+1.7	+0.6	+1.1	+1.6	+1.3	+0.8	-5.8

Dimensions in Inches.

Changes in stride length are obtained by subtracting the overall mean stride length (26.6 inches) of Subject (M.1) in Unobstructed Trials (6-10) from the corresponding mean distances recorded for each stride in trials with obstacles.

For mean stride length in trials with obstacles see APPENDIX 2 (TABLE 73).

For diagrams of changes in mean stride length corresponding to these tables see RESULTS (FIGS.54-57).

For S.D.(σ) mean stride length in Unobstructed Trials(6-10) see APPENDIX 1 (TABLE 52).

Positive differences indicate that longer strides were taken in Trials with Obstacles than in empty passageway.

TABLE (67).MEAN STRIDE LENGTH FROM START IN TRIALS WITH OBSTACLES MINUS THE OVERALL MEAN STRIDE LENGTH IN TRIALS IN THE UNOBSTRUCTED PASSAGEWAY.(M.1).

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.2

TRIAL	FOOTSTEP SEQUENCE 1	2	3	4	5	6	7	8	9	10
TWDR	+3.2	-0.9	+1.6	-0.1	-0.1	-1.3	-0.2	-2.7	-	-
TWDL	+1.0	-1.4	+2.2	-0.5	+1.8	-0.5	+0.8	-0.5	-	-
TWCR	-3.1	-1.3	-7.5	-3.8	-0.6	-3.1	-0.9	-3.3	-	-
TWCL	+0.1	-6.3	-0.6	-0.1	-0.6	-1.4	+0.6	-0.8	-	-
BWDR	+2.2	+0.9	+1.5	+0.4	+0.3	-2.1	-0.7	-3.7	-	-
BWDL	+3.0	-1.6	+1.4	-0.7	+1.0	-2.8	+0.2	-0.6	-	-
BWCR	-1.6	-2.7	-1.2	-2.0	+0.7	-2.0	-0.1	-1.8	-	-
BWCL	+1.6	-2.8	+1.4	-0.2	+0.5	-1.4	+0.2	-0.6	-	-
TNDR	+1.5	-0.7	+2.6	-0.1	+1.5	-0.8	+2.0	-0.6	-	-
TNDL	+2.8	+0.1	+2.7	+0.8	+1.9	+0.2	+1.9	+0.5	-	-
TNCR	+1.6	-1.6	+1.0	-0.4	+0.7	-0.8	+0.8	-1.1	-	-
TNCL	-0.4	-0.7	+2.1	+0.2	+0.3	+0.4	+1.3	-0.6	-	-
BNDR	-0.6	-1.7	+1.3	-0.7	+0.9	-1.3	+0.6	-0.3	-	-
BNDL	+2.1	0	+3.2	+0.4	+1.7	-0.4	+2.0	-1.2	-	-
BNCR	+1.7	-0.5	+3.0	0	+2.0	+0.3	+2.0	-1.3	-	-
BNCL	+3.6	-1.1	+1.9	-0.4	+1.9	+0.5	+1.5	-0.5	-	-

Dimensions in Inches.

Changes in stride length are obtained by subtracting the overall mean stride length (32.8 inches) of Subject (M.2) in Unobstructed Trials (6-10) from the corresponding mean distances recorded for each stride in trials with obstacles.

For mean stride length in trials with obstacles see APPENDIX 2 (TABLE 74).

For diagrams of changes in mean stride length corresponding to these tables see RESULTS (FIG. 58-65).

For S.D.(σ) mean stride length in Unobstructed Trials(6-10) see APPENDIX 1 (TABLE 53).

Positive differences indicate that longer strides were taken in Trials with Obstacles than in empty passageway.

TABLE (68).MEAN STRIDE LENGTH FROM START IN TRIALS WITH OBSTACLES MINUS THE OVERALL MEAN STRIDE LENGTH IN TRIALS IN THE UNOBSTRUCTED PASSAGEWAY.(M.2).

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.3

TRIAL	FOOTSTEP SEQUENCE 1	2	3	4	5	6	7	8	9	10
TWDR	-2.3	-0.2	+1.7	+0.8	-0.1	-0.5	-1.5	-1.3	-	-
TWDL	-3.8	+0.6	+1.0	+2.7	+0.7	-3.4	-1.1	-1.3	-	-
TWCR	-3.4	-3.2	-2.3	-2.3	+1.1	+1.7	+0.4	+1.8	-	-
TWCL	-3.8	-5.4	-1.1	-1.0	-0.6	+0.8	-0.1	-0.2	-	-
BWDR	-2.3	+1.1	+1.4	+1.1	0	+0.1	-1.2	-1.1	-	-
BWDL	-2.8	-0.6	+0.6	0	+2.9	-5.0	-1.7	-1.7	-	-
BWCR	-3.6	-3.4	-1.8	-3.7	+1.1	+0.7	+0.4	+3.2	-	-
BWCL	-2.2	-4.1	-0.6	-0.8	-0.3	+1.6	+1.7	+2.0	-	-
TNDR	-3.3	+1.3	+2.2	+1.6	+1.4	+2.5	+0.7	+1.0	-	-
TNDL	-3.2	-0.3	+1.1	+1.5	+1.9	+1.0	+2.4	+0.7	-	-
TNCR	-1.1	+0.4	+2.5	+2.4	+2.4	+1.8	+0.8	+2.0	-	-
TNCL	-2.1	+0.6	+2.4	+1.8	+1.7	+1.8	+0.7	+0.4	-	-
BNDR	-1.7	+1.0	+2.6	+3.2	+2.7	+2.7	+3.2	-2.6	-	-
BNDL	-1.3	+1.0	+1.6	+2.2	+1.9	+1.2	+1.4	+0.1	-	-
BNCR	-2.7	-0.4	+1.2	+2.3	+1.0	+3.2	+1.7	+1.9	-	-
BNCL	-2.7	-0.2	-3.3	+5.8	+1.7	+1.5	+1.0	-0.3	-	-

Dimensions in Inches.

Changes in stride length are obtained by subtracting the overall mean stride length (32.1 inches) of Subject (M.3) in Unobstructed Trials (6-10) from the corresponding mean distances recorded for each stride in trials with obstacles.

For mean stride length in trials with obstacles see APPENDIX 2 (TABLE 75).

For diagrams of changes in mean stride length corresponding to these tables see RESULTS (FIGS.66-73).

For S.D.(σ) mean stride length in Unobstructed Trials(6-10) see APPENDIX 1 (TABLE 54).

Positive differences indicate that longer strides were taken in Trials with Obstacles than in empty passageway.

TABLE (69).MEAN STRIDE LENGTH FROM START IN TRIALS WITH OBSTACLES MINUS THE OVERALL MEAN STRIDE LENGTH IN TRIALS IN THE UNOBSTRUCTED PASSAGEWAY.(M.3).

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.1

FOOTSTEP SEQUENCE

TRIAL	*1	2	3	4	5	6	7	8	9	10
TWDR	28.2	25.8	24.4	27.4	26.3	24.6	25.7	25.0	24.3	24.8
TWDL	28.6	26.0	25.7	26.1	25.7	24.6	24.4	24.8	26.0	25.0
TWCR	22.7	22.4	24.2	23.8	24.2	25.9	24.8	25.1	24.8	24.5
TWCL	24.8	23.0	23.7	24.8	26.1	25.0	25.6	26.3	25.0	25.6
BWDR	27.8	25.4	25.8	25.5	25.7	23.0	25.6	24.9	23.5	24.5
BWDL	27.3	26.0	26.1	26.3	24.6	25.1	24.8	23.9	26.2	25.1
BWCR	22.9	21.9	25.3	25.2	24.2	25.8	24.6	25.3	24.4	25.3
BWCL	24.3	23.0	24.7	25.3	24.8	26.4	26.3	26.0	25.6	24.4
TNDR	27.6	26.9	26.8	26.7	27.1	26.7	26.1	26.0	26.2	25.2
TNDL	26.8	26.1	25.9	27.0	26.6	26.5	26.2	26.4	26.0	25.0
TNCR	26.4	25.7	25.8	26.3	26.1	26.5	26.3	26.0	26.4	24.7
TNCL	26.3	25.8	25.1	26.5	25.5	25.9	25.3	25.5	25.3	24.3
BNDR	28.2	25.6	26.4	27.1	25.9	26.0	26.3	25.4	26.1	25.0
BNDL	27.3	26.2	25.0	26.8	25.8	26.2	25.6	25.9	25.3	25.0
BNCR	28.7	26.2	26.8	26.9	26.1	26.7	26.0	25.9	26.3	24.8
BNCL	28.4	26.3	25.8	26.8	27.3	26.1	26.2	24.9	27.3	24.7

Dimensions (inches) are between adjacent footprint centre-line locations.
*Step (1): Because Ss. were asked to toe the starting-line the values of Step (1) include an allowance (5.0inches) for half the length of the S's.shoe. See APPENDIX2 (FIG.).

All trials began on right foot. Each trial is mean of 4-runs.

For data of individual trials see APPENDIX 2 (TABLE 91).

For differences in mean stride length between trials with obstacles and the overall mean stride length of Subject (F.1) in Unobstructed Trials (6-10) see APPENDIX 2 (TABLE 64).

TABLE (70). MEAN STRIDE LENGTH IN TRIALS WITH OBSTACLES.(F.1).

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.2

	FOOTSTEP SEQUENCE									
TRIAL	*1	2	3	4	5	6	7	8	9	10
TWDR	25.9	25.1	25.6	26.5	24.6	24.2	26.2	24.9	24.1	25.4
TWDL	25.9	26.1	25.2	26.5	24.8	25.4	24.5	22.5	26.9	25.1
TWCR	25.5	22.2	24.8	25.8	23.1	24.8	26.1	26.6	25.7	26.7
TWCL	22.5	24.6	23.4	25.2	25.5	25.4	25.7	26.4	25.4	27.4
BWDR	25.9	25.6	26.0	26.0	25.6	25.3	25.6	25.4	23.9	27.7
BWDL	25.3	25.8	25.4	26.4	25.1	25.7	25.7	25.4	26.6	26.2
BWCR	25.8	23.3	24.5	24.4	25.3	27.5	24.0	26.3	24.5	27.0
BWCL	23.4	25.3	24.0	26.9	26.4	25.5	26.1	25.9	26.3	26.9
TNDR	25.2	25.8	25.3	27.6	25.9	27.0	27.0	26.9	27.7	26.6
TNDL	26.1	26.6	25.6	28.3	26.1	28.5	26.1	27.1	26.6	26.8
TNCR	25.1	26.9	26.3	28.5	25.7	27.2	26.6	27.2	26.7	27.4
TNCL	26.0	27.0	25.8	28.2	26.5	27.3	25.9	26.6	26.3	27.6
BNDR	24.7	26.5	25.1	28.2	26.3	26.6	26.7	27.1	26.3	26.9
BNDL	26.2	26.5	26.1	27.2	26.4	27.3	27.0	27.7	27.6	27.7
BNCR	26.5	26.6	26.6	27.1	26.5	27.9	26.7	27.6	27.2	27.1
BNCL	25.2	26.5	25.9	27.9	25.9	26.9	26.6	26.9	31.4	23.1

Dimensions (inches) are between adjacent footprint centre-line locations.
*Step (1): Because Ss. were asked to toe the starting-line the values of Step (1) include an allowance (5.0 inches) for half the length of the S's.shoe.. See APPENDIX 2(FIG.).

All trials began on right foot.Each trial is mean of 4-runs.

For data of individual trials see APPENDIX 2 (TABLE 92).

For differences in mean stride length between trials with obstacles and the overall mean stride length of Subject (F.2) in Unobstructed Trials (6-10) see APPENDIX 2 (TABLE 65).

TABLE (71).MEAN STRIDE LENGTH IN TRIALS WITH OBSTACLES.(F.2).

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.3

	FOOTSTEP SEQUENCE									
TRIAL	*1	2	3	4	5	6	7	8	9	10
TWDR	25.8	26.4	27.5	27.2	26.6	26.3	24.6	24.1	24.9	28.3
TWDL	26.3	27.0	27.8	28.1	26.2	26.6	24.3	26.0	27.6	29.5
TWCR	24.1	22.7	23.6	25.2	26.8	27.5	28.5	28.1	27.8	27.6
TWCL	24.8	24.6	23.2	25.1	27.5	28.2	28.0	27.9	28.3	28.3
BWDR	24.3	26.8	27.6	27.1	26.1	25.3	25.7	24.9	26.8	26.8
BWDL	26.3	26.9	27.2	26.1	28.3	27.0	25.8	26.7	27.1	27.2
BWCR	23.5	21.6	23.2	24.2	26.4	27.3	28.3	27.7	27.7	27.7
BWCL	23.8	25.4	22.7	29.9	25.1	27.9	28.0	28.0	28.3	28.3
TNDR	25.9	27.2	27.9	27.9	27.7	27.4	27.5	27.4	27.2	27.4
TNDL	25.3	27.2	27.2	28.4	27.4	26.3	27.0	27.4	26.8	27.4
TNCR	23.1	25.6	26.0	29.6	28.3	28.7	25.9	30.2	27.5	28.1
TNCL	23.5	25.2	27.0	27.6	28.5	28.0	28.0	31.5	31.5	24.9
BNDR	24.1	26.2	27.4	28.8	25.8	26.7	27.8	26.3	26.6	27.4
BNDL	26.8	27.3	27.7	28.0	28.0	27.2	26.9	27.5	26.7	27.2
BNCR	24.1	25.7	28.2	27.6	28.2	27.4	28.1	27.8	26.8	26.5
BNCL	23.4	25.5	27.7	28.7	28.0	28.0	27.7	28.2	28.1	27.5

Dimensions (inches) are between adjacent footprint centre-line locations.
*Step (1):Because Ss. were asked to toe the starting-line the values of Step (1) include an allowance (5.0 inches) for half the length of the S's.shoe. See APPENDIX 2 (Fig.).

All trials began on right foot.Each trial is mean of 4-runs.

For data of individual trials see APPENDIX 2 (TABLE 93).

For differences in mean stride length between trials with obstacles and the overall mean stride length of Subject (F3) in Unobstructed Trials (6-10) see APPENDIX 2 (TABLE 66).

TABLE (72).MEAN STRIDE LENGTH IN TRIALS WITH OBSTACLES.(F.3).

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.1

	FOOTSTEP SEQUENCE									
TRIAL	*1	2	3	4	5	6	7	8	9	10
TWDR	25.2	27.6	27.4	28.9	27.4	25.1	26.2	24.5	26.1	27.6
TWDL	26.2	27.8	27.9	28.0	27.2	26.8	26.3	26.4	26.7	26.9
TWCR	23.4	25.2	26.0	28.3	25.6	28.2	28.3	28.4	28.2	27.7
∓TWCL	23.9	26.0	23.6	26.9	27.9	27.0	27.8	27.0	27.5	27.4
BWDR	26.9	28.6	26.8	27.9	26.8	25.9	25.5	26.8	24.9	27.7
∓BWDL	25.8	27.4	27.3	27.3	26.6	26.7	25.3	25.9	26.3	26.3
BWCR	23.3	24.1	26.9	26.2	25.2	27.3	27.4	27.7	29.9	25.5
BWCL	23.6	21.6	25.4	27.7	28.6	27.6	28.3	27.2	27.3	27.4
TNDR	26.8	29.4	27.9	29.1	28.5	28.8	28.1	28.3	27.2	24.0
TNDL	26.1	28.0	26.3	29.3	27.0	27.4	26.5	27.0	26.9	26.0
∓TNCR	25.2	26.1	27.6	27.7	26.9	27.1	27.4	27.0	27.2	26.7
TNCL	25.3	28.3	28.5	28.7	28.1	27.8	27.4	27.7	26.8	23.2
BNDR	26.5	28.7	27.6	28.6	27.8	27.4	27.2	26.6	27.4	27.3
BNDL	26.4	28.2	27.3	27.2	27.9	27.3	27.6	27.5	26.8	22.5
BNCR	24.9	28.4	28.2	28.3	27.6	27.6	28.0	28.1	27.9	22.4
BNCL	26.1	28.5	28.0	28.3	27.2	27.7	28.2	27.9	27.4	20.8

Dimensions (inches) are between adjacent footprint centre-line locations.
*Step (1):Because Ss.were asked to toe the starting-line the values of Step (1) include an allowance (5.5 inches) for half the length of the S's.shoe. See APPENDIX 2 (FIG.).

All trials began on right foot.Each trial is mean of 4-runs except those marked (∓) which are mean of 3-runs where the fourth run began on the left foot.

For data of individual trials see APPENDIX 2 (TABLE 94).

For differences in mean stride length between trials with obstacles and the overall mean stride length of Subject (M.1) in Unobstructed Trials (6-10) see APPENDIX 2 (TABLE 67).

TABLE(73).MEAN STRIDE LENGTH IN TRIALS WITH OBSTACLES.(M.1).

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.2

	FOOTSTEP SEQUENCE									
TRIAL	*1	2	3	4	5	6	7	8	9	10
TWDR	36.0	31.9	34.4	32.7	32.7	31.5	32.6	30.1	-	-
TWDL	33.8	31.4	35.0	32.3	34.6	32.3	33.6	32.3	-	-
TWCR	29.7	31.5	25.3	29.0	32.2	29.7	31.9	29.5	-	-
TWCL	32.9	26.5	32.2	32.7	33.2	31.4	33.4	32.0	-	-
BWDR	35.0	31.9	34.3	32.4	33.1	30.7	32.1	29.1	-	-
BWDL	35.8	31.2	34.2	32.1	33.8	30.0	33.0	32.2	-	-
BWCR	31.2	30.1	31.6	30.8	33.5	30.8	32.7	31.0	-	-
BWCL	34.4	30.0	34.2	32.6	33.3	31.4	33.0	32.2	-	-
TNDR	34.3	32.1	35.4	32.7	34.3	32.0	34.8	32.2	-	-
TNDL	35.6	32.9	35.5	33.6	34.7	33.0	34.7	33.3	-	-
TNCR	34.4	31.2	33.8	32.4	33.5	32.0	33.6	31.7	-	-
TNCL	32.4	32.1	34.9	33.0	33.1	33.2	34.1	32.2	-	-
BNDR	34.2	31.1	34.1	32.1	33.7	31.5	33.4	32.5	-	-
BNDL	34.9	32.8	36.0	33.2	34.5	32.4	34.8	31.6	-	-
BNCR	34.5	32.3	35.8	32.8	34.8	33.1	34.8	31.5	-	-
BNCL	36.4	31.7	34.7	32.4	34.7	33.3	34.3	32.3	-	-

Dimensions (inches) are between adjacent footprint centre-line locations.
*Step (1):Because Ss.were asked to toe the starting-line the values of Step (1) include an allowance (6.0 inches) for half the length of the S's.shoe. See APPENDIX 2(FIG.).

All trials began on left foot.Each trial is mean of 4-runs.

For data of individual trials see APPENDIX 2 (TABLE 95).

For differences in mean stride length between trials with obstacles and the overall mean stride length of Subject (M.2) in Unobstructed Trials (6-10) see APPENDIX 2 (TABLE 68).

TABLE (74).MEAN STRIDE LENGTH IN TRIALS WITH OBSTACLES.(M.2).

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.3

FOOTSTEP SEQUENCE

TRIAL	*1	2	3	4	5	6	7	8	9	10
TWDR	29.8	31.9	33.8	32.9	32.0	31.6	30.6	30.8	-	-
TWDL	28.3	32.7	33.1	34.8	32.8	28.7	31.0	30.8	-	-
TWCR	28.7	28.9	29.8	29.8	33.2	33.8	32.5	33.9	-	-
TWCL	28.3	26.7	31.0	31.1	31.5	32.9	32.0	31.9	-	-
BWDR	29.8	33.2	33.5	33.2	32.1	32.2	30.9	31.0	-	-
BWDL	29.3	31.5	32.7	32.1	35.0	27.1	30.4	30.4	-	-
BWCR	28.5	28.7	30.3	28.4	33.2	32.8	32.5	35.3	-	-
BWCL	29.9	28.0	31.5	31.3	31.8	33.7	33.8	34.1	-	-
TNDR	28.8	33.4	34.3	33.7	33.5	34.6	32.8	33.1	-	-
TNDL	28.9	31.8	33.2	33.6	34.0	33.1	34.5	32.8	-	-
TNCR	31.0	32.5	34.6	34.5	34.5	33.9	32.9	34.1	-	-
TNCL	30.0	32.7	34.5	33.9	33.8	33.9	32.8	32.5	-	-
BNDR	30.4	33.1	34.7	35.3	34.8	34.8	35.3	29.5	-	-
BNDL	30.8	33.1	33.7	34.3	34.0	33.3	33.5	32.2	-	-
BNCR	29.4	31.7	33.3	34.4	33.1	35.3	33.8	34.0	-	-
BNCL	29.4	31.9	28.8	37.9	33.8	33.6	33.1	31.8	-	-

Dimensions (inches) are between adjacent footprint centre-line locations.
*Step (1):Because Ss.were asked to toe the starting-line the values of Step (1) include an allowance (6.0 inches) for half the length of the S's.shoe. See APPENDIX 2.(FIG.).

All trials began on left foot.Each trial is mean of 4-runs.

For data of individual trials see APPENDIX 2 (TABLE 96).

For differences in mean stride length between trials with obstacles and the overall mean stride length of Subject(M3) in Unobstructed Trials (6-10) see APPENDIX 2 (TABLE 69).

TABLE(75).MEAN STRIDE LENGTH IN TRIALS WITH OBSTACLES.(M.3).

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

MEAN FEMALE PERFORMANCE

MEAN OF TRIAL	FOOTSTEP SEQUENCE									
	1	2	3	4	5	6	7	8	9	10
TWDR BWDR	-0.2	-0.5	-0.9	-1.6	-3.4	-9.2	-12.8	-9.2	-3.7	-0.5
TWDL BWDL	0	+0.3	+1.0	+0.8	+3.6	+8.5	+11.9	+6.0	+2.7	+1.3
TWCR BWCR	-1.4	-6.9	-12.0	-9.4	-4.6	-2.5	-1.3	-0.8	+0.1	+0.5
TWCL BWCL	+2.9	+7.7	+12.7	+8.2	+3.9	+2.5	+1.2	+0.3	+0.4	-0.4

MEAN MALE PERFORMANCE

MEAN OF TRIAL	FOOTSTEP SEQUENCE									
	1	2	3	4	5	6	7	8	9	10
TWDR BWDR	-0.3	-0.6	-1.0	-0.6	-3.5	-9.0	-14.1	-7.1	-	-
TWDL BWDL	+0.2	+0.4	-0.5	-0.1	+1.3	+9.9	+12.1	+6.2	-	-
TWCR BWCR	-0.6	-6.3	-14.0	-7.9	-5.1	-1.8	-2.7	-1.7	-	-
TWCL BWCL	+0.1	+5.9	+12.0	+8.1	+3.8	+3.0	+0.6	+0.4	-	-

Dimensions(inches) are mean distances of footprints from L.H.wall in trials with obstacles minus the corresponding mean distances in the Unobstructed Passageway (Trials 6-10).

For mean male performance and mean female performance in individual trials see APPENDIX 2 (TABLES 83-84).

For diagrams of detours in response to obstacles see RESULTS (FIGS.111,112 and 119,120).

Positive differences indicate movement to right and negative differences movement to left of route taken in empty passage.

TABLE (76). MEAN DISTANCE OF FOOTPRINTS FROM L.H.WALL. TRIALS WITH OBSTACLES MINUS UNOBSTRUCTED TRIALS (6-10). RESPONSE OF ALL SUBJECTS TO RELATED WIDE OBSTACLES. COMBINED MEANS.

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.1

	FOOTSTEP SEQUENCE									
TRIAL	1	2	3	4	5	6	7	8	9	10
TWDR	-0.2	+0.5	+0.5	+0.1	-3.1	-11.2	-12.7	-6.6	-2.5	-0.3
TWDL	-0.7	+1.2	+0.7	-0.5	+2.8	+10.1	+12.5	+5.2	+2.7	+2.5
TWCR	+1.1	-4.8	-12.5	-9.1	-4.0	-2.2	-1.3	+0.7	+1.4	+2.6
TWCL	+1.1	+8.2	+14.3	+8.1	+4.3	+3.2	+1.8	+1.6	+0.9	+0.5
BWDR	-1.1	+0.3	-0.7	-0.2	-1.7	-9.1	-11.4	-5.2	-1.2	+1.2
BWDL	0	+1.2	+0.5	-0.1	+2.3	+10.7	+12.0	+5.1	+1.9	+1.7
BWCR	-0.9	-6.7	-10.8	-6.4	-2.9	-1.5	-1.0	-0.3	-1.1	+1.5
BWCL	+5.0	+11.9	+13.0	+9.5	+2.7	+2.5	+0.5	+1.5	-0.1	+2.4
TNDR	-0.2	+1.6	+0.7	-0.2	-0.8	-0.5	-0.7	-0.3	-0.1	+1.2
TNDL	+0.2	+1.7	-0.6	-0.3	+0.4	+0.2	+0.4	+0.3	-0.3	+0.8
TNCR	+0.1	+1.1	+0.3	+0.8	+0.8	+1.1	+0.7	+1.1	+0.1	+0.3
TNCL	-1.4	+2.2	+1.5	+0.6	+0.6	+1.3	+0.9	+1.2	+0.4	+1.2
BNDR	-0.6	+0.3	0	-0.2	-0.9	-1.4	-1.4	-3.0	-1.6	+0.5
BNDL	-0.3	+0.5	+0.3	+0.4	+0.7	+1.1	+0.2	-0.1	-1.0	+0.4
BNCR	-0.3	+1.5	+0.6	+1.1	+1.3	+2.5	+1.3	+1.8	+1.2	+1.9
BNCL	-0.1	+1.9	+1.7	+1.7	-0.3	+0.7	0	-0.3	-0.7	+0.1

Dimensions (inches) are differences between footprint centre-line locations.

For mean distance of footsteps from L.H.wall in trials with obstacles see APPENDIX 2 (TABLE 85).

For mean distance of footsteps from L.H.wall in Unobstructed Passageway (Trials 6-10) see RESULTS (TABLE 13).

For diagrams of detours in response to obstacles see RESULTS (FIGS. 75-78).

Positive differences indicate movement to right and negative differences movement to left of route taken in empty passage.

TABLE (77). MEAN DISTANCES OF FOOTPRINTS FROM L.H.WALL IN TRIALS WITH OBSTACLES MINUS THE CORRESPONDING MEAN DISTANCES IN THE UNOBSTRUCTED PASSAGEWAY (TRIALS 6-10). (F.1)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.2

TRIAL	FOOTSTEP SEQUENCE									
	1	2	3	4	5	6	7	8	9	10
TWDR	-1.2	-2.5	-1.9	-2.6	-5.5	-10.3	-14.0	-9.6	-4.4	-1.6
TWDL	+0.4	0	+1.9	+2.3	+5.7	+9.3	+11.0	+6.5	+2.5	0
TWCR	-3.9	-11.0	-13.5	-8.8	-3.7	-1.1	+0.9	+1.1	+1.5	-0.5
TWCL	+4.9	+10.7	+12.8	+9.3	+3.8	+2.7	+1.0	-0.8	-1.9	-3.1
BWDR	0	-1.8	-3.0	-5.5	-7.8	-11.1	-12.1	-9.1	-3.8	-2.3
BWDL	+0.6	+0.5	+2.6	+4.3	+6.9	+9.7	+10.8	+8.0	+5.3	+1.3
BWCR	-4.4	-9.9	-11.6	-8.2	-4.5	-3.0	-1.7	-1.9	-0.5	-1.5
BWCL	+4.8	+9.4	+12.1	+7.5	+4.2	+2.3	+1.5	0	+0.3	-1.3
TNDR	+0.2	-0.5	-0.1	-2.0	-1.2	-1.4	-0.9	-1.3	-0.8	-1.7
TNDL	+0.2	+0.9	+1.3	+2.0	+2.2	+1.8	+1.2	+0.6	-0.2	-1.1
TNCR	+0.6	-0.1	+0.2	+0.1	+0.6	0	+0.2	+0.3	-1.3	-2.2
TNCL	+0.4	+1.0	+1.7	+1.4	+0.6	+0.4	-0.2	-1.0	-0.7	-0.9
BNDR	+1.0	+0.3	+0.2	-1.0	-0.9	-1.1	-0.7	+0.4	+0.7	-0.5
BNDL	+0.5	+0.6	+1.2	+2.0	+0.1	+2.1	+1.7	+1.0	+0.8	-0.2
BNCR	-2.1	-2.9	-2.1	-2.0	-1.4	-0.9	-1.2	-1.2	-0.4	-1.2
BNCL	+1.9	+2.3	+2.2	+1.3	-0.4	-1.1	-1.4	-1.2	-0.6	-1.2

Dimensions (inches) are differences between footprint centre-line locations.

For mean distance of footsteps from L.H.wall in trials with obstacles see APPENDIX 2 (TABLE 86).

For mean distance of footsteps from L.H. wall in Unobstructed Passageway (Trials 6-10) see RESULTS (TABLE 14).

For diagrams of detours in response to obstacles see RESULTS (FIGS. 79-82).

Positive differences indicate movement to right and negative differences movement to left of route taken in empty passage.

TABLE (78).MEAN DISTANCES OF FOOTPRINTS FROM L.H.WALL IN TRIALS WITH OBSTACLES MINUS THE CORRESPONDING MEAN DISTANCES IN THE UNOBSTRUCTED PASSAGEWAY (TRIALS 6-10). (F.2)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.3

TRIAL	FOOTSTEP SEQUENCE 1	2	3	4	5	6	7	8	9	10
TWDR	+0.1	-0.3	0	-0.9	-1.4	-7.0	-14.3	-12.4	-6.3	-
TWDL	+0.1	+0.3	+0.3	-0.8	+0.4	+4.5	+13.1	+6.4	+3.1	-
TWCR	-1.2	-4.5	-12.4	-12.2	-6.5	-4.0	-2.4	-2.1	-0.5	-
TWCL	+1.9	+5.2	+12.6	+8.3	+4.5	+2.5	+0.7	-0.4	+2.2	-
BWDR	+1.0	+0.9	-0.7	-1.1	-1.2	-6.8	-12.5	-12.5	-4.4	-
BWDL	-0.5	-1.0	+0.1	+0.4	+3.8	+7.2	+12.2	+5.6	+4.1	-
BWCR	+0.3	-4.7	-11.3	-12.3	-6.6	-3.6	-2.8	-2.3	-0.3	-
BWCL	-0.1	+1.2	+11.8	+6.8	+4.2	+2.2	+1.9	-0.1	+1.0	-
TNDR	-0.7	-1.0	-0.9	-2.4	-3.6	-6.6	-6.9	-4.9	-1.0	-
TNDL	+0.5	+0.5	+0.8	+1.1	+2.2	+3.5	+5.2	+3.6	+1.4	-
TNCR	-0.4	-2.0	-3.0	-2.1	-0.5	+0.6	+1.3	0	+1.4	-
TNCL	+1.0	+3.8	+5.3	+2.2	+1.7	+1.2	+1.3	+0.3	+2.2	-
BNDR	+0.4	+1.2	+1.4	-0.3	-1.5	-4.5	-6.2	-4.8	-0.7	-
BNDL	-0.9	-0.7	+0.3	+1.1	+2.1	+4.1	+0.2	+1.2	+1.5	-
BNCR	-0.4	-2.1	-4.0	-3.1	-0.6	-0.6	-0.1	-2.6	+0.3	-
BNCL	+2.8	+4.9	+4.9	+3.0	+2.0	+0.7	+0.9	0	+2.4	-

Dimensions (inches) are differences between footprint centre-line locations.

For mean distance of footsteps from L.H.wall in trials with obstacles see APPENDIX 2 (TABLE 87).

For mean distance of footsteps from L.H.wall in Unobstructed Passageway (Trials 6-10) see RESULTS (TABLE 15).

For diagrams of detours in response to obstacles see RESULTS (FIGS. 83-86).
Positive differences indicate movement to right and negative differences movement to left of route taken in empty passage.

TABLE (79). MEAN DISTANCES OF FOOTPRINTS FROM L.H.WALL IN TRIALS WITH OBSTACLES MINUS THE CORRESPONDING MEAN DISTANCES IN THE UNOBSTRUCTED PASSAGEWAY (TRIALS 6-10). (F.3)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.1

TRIAL	FOOTSTEP SEQUENCE									
	1	2	3	4	5	6	7	8	9	10
TWDR	-0.7	+0.2	-0.7	-0.4	-1.0	-6.7	-18.0	-10.1	-5.1	-1.7
TWDL	-0.3	+0.9	-0.8	+0.1	+1.7	+11.8	+10.5	+6.0	-0.8	+0.2
TWCR	-0.1	-3.2	-16.1	-11.7	-8.3	-0.4	-3.6	-1.6	-3.5	-0.3
TWCL	-1.4	+2.6	+10.6	+11.2	+3.8	+4.0	-1.4	+0.5	-1.4	+0.9
BWDR	-1.3	+0.1	-1.1	+2.5	-4.6	-8.9	-17.5	-7.7	-5.0	-0.9
BWDL	-1.1	+0.5	-1.5	-0.3	-0.5	+8.8	+10.3	+8.1	-1.5	-1.0
BWCR	-0.7	-5.7	-15.1	-9.2	-4.2	+0.7	-5.7	-1.3	-3.8	-1.4
BWCL	-1.1	+5.4	+11.1	+10.1	+3.2	+3.8	-0.9	+0.3	-1.9	0
TNDR	-0.2	+1.2	-0.9	-0.3	-1.5	+0.2	-2.6	-0.2	-1.9	-0.9
TNDL	-0.6	0	-1.2	-0.4	-0.2	+2.8	+0.2	+0.6	-1.9	+0.4
TNCR	-0.8	-0.3	-2.9	-1.0	-1.1	+1.7	-2.5	-0.5	-1.9	+0.3
TNCL	-0.3	+2.1	-0.4	+0.5	-0.5	+2.1	-1.4	+0.7	-1.2	+0.1
BNDR	-0.8	+1.1	-0.8	+0.1	-1.1	+0.4	-3.6	-0.1	-2.5	0
BNDL	-0.9	+0.5	-1.0	-0.5	-0.5	+2.9	-0.5	+0.4	-2.3	+0.8
BNCR	-0.6	-0.8	-2.5	-0.9	-0.7	+2.4	-1.1	+0.1	-1.8	+0.2
BNCL	-0.6	+1.4	-1.3	-1.3	-1.4	+1.5	-1.7	-0.2	-2.6	-0.8

Dimensions (inches) are differences between footprint centre-line locations.

For mean distance of footsteps from L.H.wall in trials with obstacles see APPENDIX 2 (TABLE 88).

For mean distance of footsteps from L.H.wall in Unobstructed Passageway (Trials 6-10) see RESULTS (TABLE 16).

For diagrams of detours in response to obstacles see RESULTS (Figs. 87-90).

Positive differences indicate movement to right and negative differences movement to left of route taken in empty passage.

TABLE (80). MEAN DISTANCES OF FOOTPRINTS FROM L.H.WALL IN TRIALS WITH OBSTACLES MINUS THE CORRESPONDING MEAN DISTANCES IN THE UNOBSTRUCTED PASSAGEWAY (TRIALS 6-10). (M.1)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No.M.2

TRIAL	FOOTSTEP SEQUENCE 1	2	3	4	5	6	7	8	9	10
TWDR	-0.2	-1.1	-0.9	-2.6	-7.4	-13.1	-13.3	-9.1	-	-
TWDL	+0.2	-0.3	-0.6	+0.4	+6.2	+10.1	+9.4	+1.8	-	-
TWCR	-0.2	-7.6	-14.5	-11.7	-8.0	-6.8	-2.8	-3.3	-	-
TWCL	-0.5	+5.3	+12.5	+8.1	+5.8	+2.8	+3.2	+1.5	-	-
BDWR	+0.2	-1.5	-2.4	-1.9	-6.7	-11.9	-11.0	-5.6	-	-
BWDL	+0.4	-0.4	-0.3	+0.2	+2.0	+7.9	+10.2	+5.4	-	-
BWCR	-2.4	-9.6	-12.8	-10.5	-7.3	-5.7	-2.5	-2.6	-	-
BWCL	+0.7	+5.4	+7.4	+5.2	+3.9	+3.2	+3.6	+1.0	-	-
TNDR	+0.5	-1.2	-1.3	-1.2	-2.2	-2.7	-0.6	-0.7	-	-
TNDL	+0.6	-1.1	-1.0	-1.5	-0.6	-1.7	0	-1.1	-	-
TNCR	-1.4	-1.7	-1.6	-1.4	-1.8	-2.4	-0.7	-1.2	-	-
TNCL	-0.1	-0.1	+0.2	-0.1	-0.3	-1.5	-0.2	-0.6	-	-
BNDR	+0.5	-0.5	-0.5	-0.7	-1.9	-1.4	-0.5	-0.9	-	-
BNDL	-0.2	-1.6	0	-0.6	+0.1	-0.7	-0.5	-0.7	-	-
BNCR	-0.4	-1.5	-1.0	-0.2	+0.2	-1.1	+0.2	-0.1	-	-
BNCL	+0.6	+0.3	-0.8	-1.2	-1.3	-2.6	-1.4	-1.5	-	-

Dimensions (inches) are differences between footprint centre-line locations.

For mean distance of footsteps from L.H.wall in trials with obstacles see APPENDIX 2 (TABLE 89).

For mean distance of footsteps from L.H.wall in Unobstructed Passageway (Trials 6-10) see RESULTS (TABLE 17).

For diagrams of detours in response to obstacles see RESULTS (FIGS.91-94).

Positive differences indicate movement to right and negative differences movement to left of route taken in empty passage.

TABLE (81). MEAN DISTANCES OF FOOTPRINTS FROM L.H.WALL IN TRIALS WITH OBSTACLES MINUS THE CORRESPONDING MEAN DISTANCES IN THE UNOBSTRUCTED PASSAGEWAY (TRIALS 6-10). (M.2)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.3

TRIAL	FOOTSTEP SEQUENCE 1	2	3	4	5	6	7	8	9	10
TWDR	+0.3	-0.8	-0.8	0	-0.7	-6.6	-13.8	-5.5	–	–
TWDL	+0.9	+1.0	+0.5	+0.5	-0.9	+11.2	+17.1	+8.8	–	–
TWCR	-0.1	-4.4	-13.2	-3.3	-0.7	+1.9	+0.1	-0.4	–	–
TWCL	+1.8	+8.6	+15.9	+8.2	+3.7	+1.7	-0.3	-0.4	–	–
BWDR	-0.2	-0.6	-0.4	+0.3	-1.1	-7.2	-11.3	-4.9	–	–
BWDL	+1.3	+0.9	-0.2	-1.5	-0.3	+9.7	+15.2	+7.4	–	–
BWCR	-0.2	-7.6	-12.2	-1.0	-2.2	-0.7	-2.1	-1.0	–	–
BWCL	+1.1	+8.3	+14.2	+6.1	+2.4	+2.7	-0.6	-0.1	–	–
TNDR	-0.7	+0.2	-1.0	-1.0	-1.0	-1.3	-3.1	-1.6	–	–
TNDL	-1.4	+0.3	0	+0.6	+0.7	+2.1	+0.7	+0.8	–	–
TNCR	+0.1	0	-0.5	+0.1	+0.1	+2.0	+0.9	+0.3	–	–
TNCL	+1.6	+1.9	+1.4	+0.9	0	+0.8	-1.6	-1.7	–	–
BNDR	-0.4	-0.1	-0.4	+0.1	-0.3	-0.4	-2.3	-2.8	–	–
BNDL	+1.2	+1.0	+1.1	+2.2	+2.7	+3.4	+1.2	-0.9	–	–
BNCR	+0.2	+0.3	-0.5	+0.3	-0.8	+0.7	-0.8	+0.3	–	–
BNCL	+2.1	+2.8	+1.0	+0.9	+1.0	+1.3	-1.7	-0.9	–	–

Dimensions (inches) are differences between footprint centre-line locations.

For mean distance of footsteps from L.H.wall in trials with obstacles see APPENDIX 2 (TABLE 90).

For mean distance of footsteps from L.H.wall in Unobstructed Passageway (Trials 6-10) see RESULTS (TABLE 18).

For diagrams of detours in response to obstacles see RESULTS (FIGS. 95-98).

Positive differences indicate movement to right and negative differences movement to left of route taken in empty passage.

TABLE (82). MEAN DISTANCES OF FOOTPRINTS FROM L.H.WALL IN TRIALS WITH OBSTACLES MINUS THE CORRESPONDING MEAN DISTANCES IN THE UNOBSTRUCTED PASSAGEWAY (TRIALS 6-10). (M.3)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject Nos. F.1 F.2 F.3 (Mean Female Performance)
* F.1 and F.2 only.

	FOOTSTEP SEQUENCE									
TRIAL	1	2	3	4	5	6	7	8	9	*10
TWDR	-0.4	-0.8	-0.4	-1.1	-3.3	-9.5	-13.6	-9.5	-4.4	-0.6
TWDL	-0.1	+0.5	+0.9	+0.3	+2.9	+7.9	+12.2	+6.0	+1.7	+1.2
TWCR	-1.3	-6.8	-12.8	-10.0	-4.7	-2.4	-0.9	-0.1	+0.8	+1.1
TWCL	+2.6	+8.0	+13.2	+8.6	+4.1	+2.8	+1.1	+0.1	+0.4	-1.3
BWDR	0	-0.2	-1.4	-2.2	-3.6	-9.0	-12.0	-8.9	-3.1	-0.5
BWDL	0	+0.2	+1.1	+1.4	+4.3	+9.2	+11.6	+6.1	+3.8	+1.5
BWCR	-1.6	-7.1	-11.2	-8.9	-4.6	-2.7	-1.8	-1.5	-0.6	0
BWCL	+3.2	+7.5	+12.3	+7.9	+3.7	+2.3	+1.3	+0.5	+0.4	+0.5
TNDR	-0.2	0	-0.1	-1.8	-1.9	-2.8	-2.8	-2.2	-0.6	-0.3
TNDL	+0.3	+1.0	+0.5	+0.9	+1.6	+1.8	+2.3	+1.5	+0.3	-0.1
TNCR	+0.1	-0.3	-0.8	-0.4	+0.3	+0.6	+0.7	+0.5	+0.1	-0.6
TNCL	0	+2.3	+2.8	+1.4	+1.0	+1.0	+0.7	+0.2	+0.6	+0.1
BNDR	+0.3	+0.6	+0.5	-0.5	-1.1	-2.3	-2.8	-2.5	-0.5	0
BNDL	-0.2	+0.1	+0.6	+1.2	+1.0	+2.4	+0.7	+0.7	-0.6	+0.1
BNCR	-0.9	-1.2	-1.9	-1.3	-0.2	+0.3	0	-0.7	+0.4	+0.2
BNCL	-1.5	+3.0	+2.9	+2.0	+0.4	+0.1	-0.2	-0.5	+0.4	-0.4

Dimensions (inches) are differences between footprint centre-line locations.

Difference values for T/BWCR etc.(FIGS.111 & 112) are the means of the added values for TWCR and BWCR, etc., (TABLE 76).

For mean distance of footsteps from L.H.wall in trials with obstacles minus Unobstructed Trials (6-10) see TABLES (77-79).

For diagrams of detours in response to obstacles see RESULTS (FIGS. 105-112).

Positive differences indicate movement to right and negative differences movement to left of route taken in empty passage.

TABLE (83).MEAN DISTANCES OF FOOTPRINTS FROM L.H.WALL IN TRIALS WITH OBSTACLES MINUS THE CORRESPONDING MEAN DISTANCES IN THE UNOBSTRUCTED PASSAGEWAY (TRIALS 6-10). (MEAN FEMALE PERFORMANCE)

APPENDIX 2.EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject Nos. M.1 M.2 M.3 (Mean Male Performance)

	FOOTSTEP SEQUENCE									
TRIAL	1	2	3	4	5	6	7	8	9	10
TWDR	-0.2	-0.5	-0.8	-1.0	-3.0	-8.8	-15.0	-8.2	-	-
TWDL	+0.3	+0.5	-0.3	+0.3	+2.3	+11.0	+12.3	+5.5	-	-
TWCR	-0.1	-5.1	-14.6	-8.9	-5.6	-1.8	-2.1	-1.8	-	-
TWCL	0	+5.5	+13.0	+9.2	+4.4	+2.8	+0.5	+0.5	-	-
BWDR	-0.4	-0.7	-1.3	+0.3	-4.1	-9.3	-13.3	-6.1	-	-
BWDL	+0.2	+0.3	-0.7	-0.5	+0.4	+8.8	+11.9	+6.9	-	-
BWCR	-1.1	-7.6	-13.4	-6.9	-4.6	-1.9	-3.4	-1.6	-	-
BWCL	+0.2	+6.3	+10.9	+7.1	+3.2	+3.2	+0.7	+0.4	-	-
TNDR	-0.1	+0.1	-1.1	-0.8	-1.6	-1.3	-2.1	-0.8	-	-
TNDL	+0.5	-0.3	-0.7	-0.4	0	+1.1	+0.3	+0.1	-	-
TNCR	-0.7	-0.7	-1.7	-0.8	-0.9	+0.4	-0.8	-0.5	-	-
TNCL	+0.4	+1.3	+0.4	+0.4	-0.3	-0.9	-1.3	-0.5	-	-
BNDR	-0.2	+0.2	-0.6	-0.2	-1.1	-0.5	-2.1	-1.3	-	-
BNDL	0	0	0	+0.4	+0.8	+1.9	+0.1	-0.4	-	-
BNCR	-0.3	-0.7	-1.3	-0.3	-0.4	+0.7	-0.6	+0.1	-	-
BNCL	+0.7	+1.5	-0.4	-0.5	-0.6	+0.1	-1.6	-0.9	-	-

Dimensions (inches) are differences between footprint centre-line locations.

Difference values for T/BWCR etc.(FIGS.119 & 120) are the means of the added values for TWCR and BWCR, etc., (TABLE 76).

For mean distance of footsteps from L.H.wall in trials with obstacles minus Unobstructed Trials (6-10) see TABLES (80-82).

For diagrams of detours in response to obstacles see RESULTS (FIGS.113-120).

Positive differences indicate movement to right and negative differences movement to left of route taken in empty passage.

TABLE (84).MEAN DISTANCES OF FOOTPRINTS FROM L.H.WALL IN TRIALS WITH OBSTACLES MINUS THE CORRESPONDING MEAN DISTANCES IN THE UNOBSTRUCTED PASSAGEWAY (TRIALS 6-10). (MEAN MALE PERFORMANCE)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.1

TRIAL	FOOTSTEP SEQUENCE 1	2	3	4	5	6	7	8	9	10
TWDR	27.6	24.1	27.7	24.8	25.1	13.6	15.2	18.5	25.5	24.3
TWDL	27.1	24.8	27.9	24.2	31.0	34.9	40.4	30.3	30.7	26.5
TWCR	28.9	18.8	14.7	15.6	24.2	22.6	26.6	25.8	29.4	26.6
TWCL	28.9	31.8	41.5	32.8	32.5	28.0	29.7	26.7	28.9	24.5
BWDR	26.7	23.9	26.5	24.5	26.5	15.7	16.5	19.9	26.8	25.2
BWDL	27.8	24.8	27.7	24.6	30.5	35.5	39.9	30.2	29.9	25.7
BWCR	26.9	16.9	16.4	18.3	25.3	23.3	26.9	24.8	26.9	25.5
BWCL	32.8	35.5	40.2	34.2	30.9	27.3	28.4	26.6	27.9	26.4
TNDR	27.6	25.2	27.9	24.5	27.4	24.3	27.2	24.8	27.9	25.2
TNDL	28.0	25.3	26.6	24.4	28.6	25.0	28.3	25.4	27.7	24.8
TNCR	27.9	24.7	27.5	25.5	29.0	25.9	28.6	26.2	28.1	24.3
TNCL	26.4	25.8	28.7	25.3	28.8	26.1	28.8	26.3	28.4	25.2
BNDR	27.2	23.9	27.2	24.5	27.3	23.4	26.5	22.1	26.4	24.5
BNDL	27.5	24.1	27.5	25.1	28.9	25.9	28.1	25.0	27.0	24.4
BNCR	27.5	25.1	27.8	25.8	29.5	27.3	29.2	26.9	29.2	25.9
BNCL	27.7	25.5	28.9	26.4	27.9	25.5	27.9	24.8	27.3	24.1

Dimensions (inches) are from L.H.wall to footprint centre-line locations.

All trials began on right foot. Each trial is mean of 4-runs.

For data of individual trials see APPENDIX 2 (TABLE 91).

REFERENCE: Corresponding mean distances in Unobstructed Trials (6-10). See RESULTS (TABLE 13).

(6-10)	27.8	23.6	27.2	24.7	28.2	24.8	27.9	25.1	28.0	24.0

For differences in mean distances between trials with obstacles and Unobstructed Trials (6-10) see APPENDIX 2, TABLE (77).

TABLE (85). MEAN DISTANCES OF FOOTPRINTS FROM L.H.WALL IN TRIALS WITH OBSTACLES. (F.1)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.2

	FOOTSTEP SEQUENCE									
TRIAL	1	2	3	4	5	6	7	8	9	10
TWDR	26.8	22.9	26.9	23.3	24.4	16.5	16.0	17.3	25.8	25.7
TWDL	28.4	25.4	30.7	28.2	35.6	36.1	41.0	33.4	33.7	27.3
TWCR	24.1	14.4	15.3	17.1	26.2	25.7	30.9	28.0	31.7	26.8
TWCL	32.9	36.1	41.6	35.2	33.7	29.5	31.0	26.1	28.3	24.2
BWDR	28.0	23.6	25.8	20.4	22.1	15.7	17.9	17.8	26.4	25.0
BWDL	28.6	25.9	31.4	30.2	36.8	36.5	40.8	34.9	35.5	28.6
BWCR	23.6	15.5	17.2	17.7	25.4	23.8	28.3	25.0	29.7	25.8
BWCL	32.8	34.8	40.9	33.4	34.1	29.1	31.5	26.9	30.5	26.0
TNDR	28.2	24.9	28.7	23.9	28.7	25.4	29.1	25.6	29.4	25.6
TNDL	28.2	26.3	30.1	27.9	32.1	28.6	31.2	27.5	30.0	26.2
TNCR	28.6	25.3	29.0	26.0	30.5	26.8	30.2	27.2	28.9	25.1
TNCL	28.4	26.4	30.5	27.3	30.5	27.2	29.8	25.9	29.5	26.4
BNDR	29.0	25.7	29.0	24.9	29.0	25.7	29.3	27.3	30.9	26.8
BNDL	28.5	26.0	30.0	27.9	32.0	28.9	31.7	27.9	31.0	27.1
BNCR	25.9	22.5	26.7	23.9	28.5	25.9	28.8	25.7	29.8	26.1
BNCL	29.9	27.7	31.0	27.2	29.5	25.7	28.6	25.7	29.6	26.1

Dimensions (inches) are from L.H.wall to footprint centre-line locations.

All trials began on right foot.Each trial is mean of 4-runs.

For data of individual trials see APPENDIX 2 (TABLE 92).

REFERENCE: Corresponding mean distances in Unobstructed Trials (6-10). See RESULTS (TABLE 14).

(6-10)	28.0	25.4	28.8	25.9	29.9	26.8	30.0	26.9	30.2	27.3

For differences in mean distances between trials with obstacles and Unobstructed Trials (6-10) see APPENDIX 2, (TABLE 78).

TABLE (86). MEAN DISTANCES OF FOOTPRINTS FROM L.H.WALL IN TRIALS WITH OBSTACLES. (F.2)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.3

TRIAL	FOOTSTEP SEQUENCE 1	2	3	4	5	6	7	8	9	10
TWDR	28.4	25.6	28.1	25.0	27.1	19.2	14.0	11.6	21.6	21.0
TWDL	28.4	26.2	28.4	25.1	28.9	30.7	41.4	33.4	31.0	24.8
TWCR	27.1	21.4	15.7	13.7	22.0	22.2	25.9	24.9	27.4	24.1
TWCL	30.2	31.1	40.7	34.2	33.0	28.7	29.0	26.6	30.1	26.5
BWDR	29.3	26.8	27.4	24.8	27.3	19.4	15.8	14.5	23.5	23.9
BWDL	27.8	24.9	28.2	26.3	32.3	33.4	40.5	32.6	32.0	26.9
BWCR	28.6	21.2	16.8	13.6	21.9	22.6	25.5	24.7	27.6	24.3
BWCL	28.2	27.1	39.9	32.7	32.7	28.4	30.2	26.9	28.9	24.3
TNDR	27.6	24.9	27.2	23.5	24.9	19.6	21.4	22.1	26.9	25.2
TNDL	28.8	26.4	28.9	27.0	30.7	29.7	33.5	30.6	29.3	25.8
TNCR	27.9	23.9	25.1	23.8	28.0	26.8	29.6	27.0	29.3	25.9
TNCL	29.3	29.7	33.4	28.1	30.2	27.4	29.6	27.3	30.1	25.1
BNDR	28.7	27.1	29.5	25.6	27.0	21.7	22.1	22.2	27.2	24.9
BNDL	27.4	25.2	28.4	27.0	30.6	30.3	28.5	28.2	29.4	24.0
BNCR	27.9	23.8	24.1	22.8	27.9	25.6	28.2	24.4	28.2	25.7
BNCL	31.1	30.8	33.0	28.9	30.5	26.9	29.2	27.0	30.3	27.1

Dimensions(inches) are from L.H.wall to footprint centre-line locations.

All trials began on right foot.Each trial is mean of 4-runs.

For data of individual trials see APPENDIX 2 (TABLE 93).

REFERENCE: Corresponding mean distances in Unobstructed Trials (6-10). See RESULTS (TABLE 15).

(6-10)	28.3	25.9	28.1	25.9	28.5	26.2	28.3	27.0	27.9	-

For differences in mean distances between trials with obstacles and Unobstructed Trials (6-10) see APPENDIX 2 (TABLE 79).

TABLE (87). MEAN DISTANCES OF FOOTPRINTS FROM L.H.WALL IN TRIALS WITH OBSTACLES. (F.3)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.1 FOOTSTEP SEQUENCE

TRIAL	1	2	3	4	5	6	7	8	9	10
TWDR	31.0	23.5	30.5	23.3	30.6	16.4	14.6	14.8	28.2	23.1
TWDL	31.4	24.2	30.4	23.8	33.3	34.9	43.1	30.9	32.5	25.0
TWCR	31.6	20.1	15.1	12.0	23.3	22.7	29.0	23.3	29.8	24.5
TWCL *	30.3	25.9	41.8	34.9	35.4	27.1	31.2	25.4	31.9	25.7
BWDR	30.4	23.4	30.1	26.2	27.0	14.2	15.1	17.2	28.3	23.9
BWDL *	30.6	23.8	29.7	23.4	31.1	31.9	42.9	33.0	31.8	23.8
BWCR	31.0	17.6	16.1	14.5	27.4	23.8	26.9	23.6	29.5	23.4
BWCL	30.6	28.7	42.3	33.8	34.8	26.9	31.7	25.2	31.4	24.8
TNDR	31.5	24.5	30.3	23.4	30.1	23.3	30.0	24.7	31.4	23.9
TNDL	31.1	23.3	30.0	23.3	31.4	25.9	32.9	25.5	31.4	25.2
TNCR *	30.9	23.0	28.3	22.7	30.5	24.8	30.1	24.4	31.4	25.1
TNCL	31.4	25.4	30.8	24.2	31.1	25.2	31.2	25.6	32.1	24.9
BNDR	30.9	24.4	30.4	23.8	30.5	23.5	29.0	24.8	30.8	24.8
BNDL	30.8	23.8	30.2	23.2	31.1	26.0	32.1	25.3	31.0	25.6
BNCR	31.1	22.5	28.7	22.8	30.9	25.5	31.5	25.0	31.5	25.0
BNCL	30.1	24.7	29.9	22.4	30.2	24.6	30.9	24.7	30.7	24.0

Dimensions (inches) are from L.H.wall to footprint centre-line locations.

All trials began on right foot. Each trial is mean of 4-runs except those marked (*) which are mean of 3-runs where the fourth run began on the left foot.

For data of individual trials see APPENDIX 2 (TABLE 94).

REFERENCE: Corresponding mean distances in Unobstructed Trials (6-10). See RESULTS (TABLE 16).

(6-10)	23.3	31.7	23.7	31.2	23.1	31.6	24.9	32.6	24.8	33.3
**	31.7	23.3	31.2	23.7	31.6	23.1	32.6	24.9	33.3	24.8

**Note that Unobstructed Trials began on left foot whereas trials with obstacles began on right foot. Meaningful comparisons are possible only by transposing the footstep sequence in Unobstructed Trials, i.e.read line ** as first right footstep, first left footstep, and so on.

For differences in mean distances between trials with obstacls and Unobstructed Trials (6-10) see APPENDIX 2 (TABLE 80).

TABLE (88). MEAN DISTANCES OF FOOTPRINTS FROM L.H.WALL IN TRIALS WITH OBSTACLES. (M.1).

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.2

TRIAL	FOOTSTEP SEQUENCE 1	2	3	4	5	6	7	8	9	10
TWDR	25.1	29.4	25.2	28.1	19.2	18.0	13.2	21.8	-	-
TWDL	25.5	30.2	25.5	31.1	32.8	41.2	35.9	32.7	-	-
TWCR	25.1	22.9	11.6	19.0	18.6	24.3	23.7	27.6	-	-
TWCL	24.8	35.8	38.6	38.8	32.4	33.9	29.7	32.4	-	-
BWDR	25.5	29.0	23.7	28.8	19.9	20.2	15.5	25.3	-	-
BWDL	25.7	30.1	25.8	30.9	28.6	39.0	36.7	36.3	-	-
BWCR	22.9	20.9	13.3	20.2	19.3	25.4	24.0	28.3	-	-
BWCL	26.0	35.9	33.5	35.9	30.5	34.3	30.1	31.9	-	-
TNDR	25.8	29.3	24.8	29.5	24.4	28.4	25.9	30.2	-	-
TNDL	25.9	29.4	25.1	29.2	26.0	29.4	26.5	29.8	-	-
TNCR	23.9	28.8	24.5	29.3	24.8	28.7	25.8	29.7	-	-
TNCL	25.2	30.4	26.3	30.6	26.3	29.6	26.3	30.3	-	-
BNDR	25.8	30.0	25.6	30.0	24.7	29.7	26.0	30.0	-	-
BNDL	25.1	28.9	26.1	31.1	26.7	30.4	26.0	30.2	-	-
BNCR	24.9	29.0	25.1	30.5	26.8	30.0	26.7	30.8	-	-
BNCL	25.9	30.8	25.3	29.5	25.3	28.5	25.1	29.4	-	-

Dimensions (inches) are from L.H.wall to footprint centre-line locations.

All trials began on left foot. Each trial is mean of 4-runs.

For data of individual trials see APPENDIX 2 (TABLE 95).

REFERENCE: Corresponding mean distances in Unobstructed Trials (6-10). See RESULTS (TABLE 17).

(6-10)	25.3	30.5	26.1	30.7	26.6	31.1	26.5	30.9	-	-

For differences in mean distances between Trials with Obstacles and Unobstructed Trials (6-10) see APPENDIX 2, (TABLE 81).

TABLE (89). MEAN DISTANCES OF FOOTPRINTS FROM L.H.WALL IN TRIALS WITH OBSTACLES. (M.2)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.3

TRIAL	FOOTSTEP SEQUENCE 1	2	3	4	5	6	7	8	9	10
TWDR	23.4	27.5	23.0	27.9	23.0	20.5	10.3	22.7	-	-
TWDL	24.0	29.3	24.3	28.4	22.8	38.3	41.2	37.0	-	-
TWCR	23.0	23.9	10.6	24.6	23.0	29.0	24.2	27.8	-	-
TWCL	24.9	36.9	39.7	36.1	27.4	28.8	23.8	27.8	-	-
BWDR	22.9	27.7	23.4	28.2	22.6	19.9	12.8	23.3	-	-
BWDL	24.4	29.2	23.6	26.4	23.4	36.8	39.3	35.6	-	-
BWCR	22.9	20.7	11.6	26.9	21.5	26.4	22.0	27.2	-	-
BWCL	24.2	36.6	38.0	34.0	26.1	29.8	23.5	28.1	-	-
TNDR	22.4	28.5	22.8	26.9	22.7	25.8	21.0	26.6	-	-
TNDL	24.5	28.6	23.8	28.5	24.4	29.2	24.8	29.0	-	-
TNCR	23.2	28.3	23.3	28.0	23.8	29.1	25.0	28.5	-	-
TNCL	24.7	30.2	25.2	28.8	23.7	27.9	22.5	26.5	-	-
BNDR	22.7	28.2	23.4	28.0	23.4	26.7	21.8	25.4	-	-
BNDL	24.3	29.3	24.9	30.1	26.4	30.5	25.3	27.3	-	-
BNCR	23.3	28.6	23.3	28.2	22.9	27.8	23.3	28.5	-	-
BNCL	25.2	31.1	24.8	28.8	24.7	28.4	22.4	27.3	-	-

Dimensions (inches) are from L.H.wall to footprint centre-line locations.

All trials began on left foot.Each trial is mean of 4-runs.

For data of individual trials see APPENDIX 2 (TABLE 96).

REFERENCE: Corresponding mean distances in Unobstructed Trials (6-10). See RESULTS (TABLE 18).

(6-10)	23.1	28.3	23.8	27.9	23.7	27.1	24.1	28.2	-	-

For differences in mean distances between trials with obstacles and Unobstructed Trials (6-10)see APPENDIX 2 (TABLE 82).

TABLE (90). MEAN DISTANCES OF FOOTPRINTS FROM L.H.WALL IN TRIALS WITH OBSTACLES. (M.3)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.1

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
TWDR	R	23.2	27.6	73.4	27.7	127.1	25.1	177.4	15.2	226.7	25.5
	L	49.0	24.1	100.8	24.8	151.7	13.6	202.4	18.5	251.5	24.3
TWDL	R	23.6	27.1	75.3	27.9	127.1	31.0	176.1	40.4	226.9	30.7
	L	49.6	24.8	101.4	24.2	151.7	34.9	200.9	30.3	251.9	26.5
TWCR	R	17.7	28.9	64.3	14.7	112.3	24.2	163.0	26.6	212.9	29.4
	L	40.1	18.8	88.1	15.6	138.2	22.6	188.1	25.8	237.4	26.6
TWCL	R	19.8	28.9	66.5	41.5	117.4	32.5	168.0	29.7	219.3	28.9
	L	42.8	31.8	91.3	32.8	142.4	28.0	194.3	26.7	244.9	24.5
BWDR	R	22.8	26.7	74.0	26.5	125.2	26.5	173.8	16.5	222.2	26.8
	L	48.2	23.9	99.5	24.5	148.2	15.7	198.7	19.9	246.7	25.2
BWDL	R	22.3	27.8	74.4	27.7	125.3	30.5	175.2	39.9	225.3	29.9
	L	48.3	24.8	100.7	24.6	150.4	35.5	199.1	30.2	250.4	25.7
BWCR	R	17.9	26.9	65.1	16.4	114.5	25.3	164.9	26.9	214.6	26.9
	L	39.8	16.9	90.3	18.3	140.3	23.3	190.2	24.8	239.9	25.5
BWCL	R	19.3	32.8	67.0	40.2	117.1	30.9	169.8	28.4	221.4	27.9
	L	42.3	35.5	92.3	34.2	143.5	27.3	195.8	26.6	245.8	26.4
TNDR	R	22.6	27.6	76.3	27.9	130.1	27.4	182.9	27.2	235.1	27.9
	L	49.5	25.2	103.0	24.5	156.8	24.3	208.9	24.8	260.3	25.2
TNDL	R	21.8	28.0	73.8	26.6	127.4	28.6	180.1	28.3	232.5	27.7
	L	47.9	25.3	100.8	24.4	153.9	25.0	206.5	25.4	257.5	24.8
TNCR	R	21.4	27.9	72.9	27.5	125.3	29.0	178.1	28.6	230.5	28.1
	L	47.1	24.7	99.2	25.5	151.8	25.9	204.1	26.2	255.2	24.3
TNCL	R	21.3	26.4	72.2	28.7	124.3	28.8	175.5	28.8	226.3	28.4
	L	47.1	25.8	98.7	25.3	150.2	26.1	201.0	26.3	250.6	25.2
BNDR	R	23.2	27.2	75.2	27.2	128.2	27.3	180.5	26.0	232.0	26.4
	L	48.8	23.9	102.3	24.5	154.2	23.4	205.9	22.1	257.0	24.5
BNDL	R	22.3	27.5	73.5	27.5	126.1	28.9	177.9	28.1	229.1	27.0
	L	48.5	24.1	100.3	25.1	152.3	25.9	203.8	25.0	254.1	24.4
BNCR	R	23.7	27.5	76.7	27.8	129.7	29.5	182.4	29.2	234.6	29.2
	L	49.9	25.1	103.6	25.8	156.4	27.3	208.3	26.9	259.4	25.9
BNCL	R	23.4	27.7	75.5	28.9	129.6	27.9	181.9	27.9	234.1	27.3
	L	49.7	25.5	102.3	26.4	155.7	25.5	206.8	24.8	258.8	24.1

(R) Right foot. (D) Distance from start (inches).
(L) Left foot. (W) Width from L.H.wall (inches).

Each trial is mean of 4-runs.
For data of individual runs see APPENDIX 2 (TABLE 97).

TABLE (91). MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES. (F.1).

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.2

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
TWDR	R	20.9	26.8	71.6	26.9	122.7	24.4	173.1	16.0	222.1	25.8
	L	46.0	22.9	98.1	23.3	146.9	16.5	198.0	17.3	249.5	25.7
TWDL	R	20.9	28.4	72.2	30.7	123.5	35.6	173.4	41.0	222.8	33.7
	L	47.0	25.4	98.7	28.2	148.9	36.1	195.9	33.4	247.9	27.3
TWCR	R	20.5	24.1	67.5	15.3	116.4	26.2	167.3	30.9	219.6	31.7
	L	42.7	14.4	93.3	17.1	141.2	25.7	193.9	28.0	246.3	26.8
TWCL	R	17.5	32.9	65.5	41.6	116.2	33.7	167.3	31.0	219.1	28.3
	L	42.1	36.1	90.7	35.2	141.6	29.5	193.7	26.1	246.5	24.2
BWDR	R	20.9	28.0	72.5	25.8	124.1	22.1	175.0	17.9	224.3	26.4
	L	46.5	23.6	98.5	20.4	149.4	15.7	200.4	17.8	252.0	25.0
BWDL	R	20.3	28.6	71.5	31.4	123.0	36.8	174.4	40.8	226.4	35.5
	L	46.1	25.9	97.9	30.2	148.7	36.5	199.8	34.9	252.6	28.6
BWCR	R	20.8	23.6	68.6	17.2	118.3	25.4	169.8	28.3	220.6	29.7
	L	44.1	15.5	93.0	17.7	145.8	23.8	196.1	25.0	247.6	25.8
BWCL	R	18.4	32.8	67.7	40.9	120.0	34.1	171.6	31.5	223.8	30.5
	L	43.7	34.8	93.6	33.4	145.5	29.1	197.5	26.9	250.7	26.0
TNDR	R	20.2	28.2	71.3	28.7	124.8	28.7	178.8	29.1	233.4	29.4
	L	46.0	24.9	98.9	23.9	151.8	25.4	205.7	25.6	260.0	25.6
TNDL	R	21.1	28.2	73.3	30.1	127.7	32.1	182.3	31.2	236.0	30.0
	L	47.7	26.3	101.6	27.9	156.2	28.6	209.4	27.5	262.8	26.2
TNCR	R	20.1	28.6	73.3	29.0	127.5	30.5	181.3	30.2	235.2	28.9
	L	47.0	25.3	101.8	26.0	154.7	26.8	208.5	27.2	262.6	25.1
TNCL	R	21.0	28.4	73.8	30.5	128.5	30.5	181.7	29.8	234.6	29.5
	L	48.0	26.4	102.0	27.3	155.8	27.2	208.3	25.9	262.2	26.4
BNDR	R	19.7	29.0	71.3	29.0	125.8	29.0	179.1	29.3	232.5	30.9
	L	46.2	25.7	99.5	24.9	152.4	25.7	206.2	27.3	259.4	26.8
BNDL	R	21.2	28.5	73.8	30.0	127.4	32.0	181.7	31.7	237.0	31.0
	L	47.7	26.0	101.0	27.9	154.7	28.9	209.4	27.9	264.7	27.1
BNCR	R	21.5	25.9	74.7	26.7	128.3	28.5	182.9	28.8	237.7	29.8
	L	48.1	22.5	101.8	23.9	156.2	25.9	210.5	25.7	264.8	26.1
BNCL	R	20.2	29.9	72.6	31.0	126.4	29.5	179.9	28.6	238.2	29.6
	L	46.7	27.7	100.5	27.2	153.3	25.7	206.8	25.7	261.3	26.1

(R) Right foot. (D) Distance from start (inches).
(L) Left foot. (W) Width from L.H.wall (inches).

Each trial is mean of 4-runs.
For data of individual runs see APPENDIX 2 (TABLE 98).

TABLE (92). MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES. (F.2)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.3

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
TWDR	R	20.8	28.4	74.7	28.1	128.5	27.1	177.5	14.0	226.5	21.6
	L	47.2	25.6	101.9	25.0	152.9	19.2	201.6	11.6	254.8	21.0
TWDL	R	21.3	28.4	76.1	28.4	130.4	28.9	181.3	41.4	234.9	31.0
	L	48.3	26.2	104.2	25.1	157.0	30.7	207.3	33.4	264.4	24.8
TWCR	R	19.1	27.1	65.4	15.7	117.4	22.0	173.4	25.9	229.3	27.4
	L	41.8	21.4	90.6	13.7	144.9	22.2	201.5	24.9	256.9	24.1
TWCL	R	19.8	30.2	67.6	40.7	120.2	33.0	176.4	29.0	232.6	30.1
	L	44.4	31.1	92.7	34.2	148.4	28.7	204.3	26.6	260.9	26.5
BWDR	R	19.3	29.3	73.7	27.4	126.9	27.3	177.9	15.8	229.6	23.5
	L	46.1	26.8	100.8	24.8	152.2	19.4	202.8	14.5	256.4	23.9
BWDL	R	21.3	27.8	75.4	28.2	129.8	32.3	182.6	40.5	236.4	32.0
	L	48.2	24.9	101.5	26.3	156.8	33.4	209.3	32.6	263.6	26.9
BWCR	R	18.5	28.6	63.3	16.8	113.9	21.9	169.5	25.5	224.9	27.6
	L	40.1	21.2	87.5	13.6	141.2	22.6	197.2	24.7	252.6	24.3
BWCL	R	18.8	28.2	66.9	39.9	121.9	32.7	177.8	30.2	234.1	28.9
	L	44.2	27.1	96.8	32.7	149.8	28.4	205.8	26.9	262.4	24.3
TNDR	R	20.9	27.6	76.0	27.2	131.6	24.9	186.5	21.4	241.1	26.9
	L	48.1	24.9	103.9	23.5	159.0	19.6	213.9	22.1	268.5	25.2
TNDL	R	20.3	28.8	74.7	28.9	130.5	30.7	183.8	33.5	238.0	29.3
	L	47.5	26.4	103.1	27.0	156.8	29.7	211.2	30.6	265.4	25.8
TNCR	R	18.1	27.9	69.7	25.1	127.6	28.0	182.2	29.6	239.9	29.3
	L	43.7	23.9	99.3	23.8	156.3	26.8	212.4	27.0	268.0	25.9
TNCL	R	18.5	29.3	70.7	33.4	126.8	30.2	182.8	29.6	240.9	30.1
	L	43.7	29.7	98.3	28.1	154.8	27.4	209.4	27.3	265.8	25.1
BNDR	R	19.1	28.7	72.7	29.5	127.3	27.0	181.8	22.1	234.7	27.2
	L	45.3	27.1	101.5	25.6	154.0	21.7	208.1	22.2	262.1	24.9
BNDL	R	21.8	27.4	76.8	28.4	132.8	30.6	186.9	28.5	241.1	29.4
	L	49.1	25.2	104.8	27.0	160.0	30.3	214.4	28.2	268.3	24.0
BNCR	R	19.1	27.9	73.0	24.1	128.8	27.9	184.3	28.2	238.9	28.2
	L	44.8	23.8	100.6	22.8	156.2	25.6	212.1	24.4	265.4	25.7
BNCL	R	18.4	31.1	71.6	33.0	128.3	30.5	184.0	29.2	240.3	30.3
	L	43.9	30.8	100.3	28.9	156.3	26.9	212.2	27.0	267.8	27.1

(R) Right foot. (D) Distance from start (inches).
(L) Left foot. (W) Width from L.H.wall (inches).

Each trial is mean of 4-runs.
For data of individual runs see APPENDIX 2 (TABLE 99).

TABLE (93). MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES. (F.3)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.1

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
TWDR	R	19.7	31.0	74.7	30.5	131.0	30.6	182.3	14.6	232.9	28.2
	L	47.3	23.5	103.6	23.3	156.1	16.4	206.8	14.8	260.5	23.1
TWDL	R	20.7	31.4	76.4	30.4	131.6	33.3	184.7	43.1	237.8	32.5
	L	48.5	24.2	104.4	23.8	158.4	34.9	211.1	30.9	264.7	25.0
TWCR	R	17.9	31.6	69.1	15.1	123.0	23.3	179.5	29.0	236.1	29.8
	L	43.1	20.1	97.4	12.0	151.2	22.7	207.9	23.3	263.8	24.5
*TWCL	R	18.4	30.3	68.0	41.8	122.8	35.4	177.6	31.2	232.1	31.9
	L	44.4	25.9	94.9	34.9	149.8	27.1	204.6	25.4	259.5	25.7
BWDR	R	21.4	30.4	76.8	30.1	131.5	27.0	182.9	15.1	234.6	28.3
	L	50.0	23.4	104.7	26.2	157.4	14.2	209.7	17.2	262.3	23.9
*BWDL	R	20.3	30.6	75.0	29.7	128.9	31.1	180.9	42.9	233.1	31.8
	L	47.7	23.8	102.3	23.4	155.6	31.9	206.8	33.0	259.4	23.8
BWCR	R	17.8	31.0	68.8	16.1	120.2	27.4	174.9	26.9	232.5	29.5
	L	41.9	17.6	95.0	14.5	147.5	23.8	202.6	23.6	258.0	23.4
BWCL	R	18.1	30.6	70.6	42.3	126.9	34.8	182.8	31.7	237.3	31.4
	L	45.2	28.7	98.3	33.8	154.5	26.9	210.0	25.2	264.7	24.8
TNDR	R	21.3	31.5	78.6	30.3	136.2	30.1	193.1	30.0	248.6	31.4
	L	50.7	24.5	107.7	23.4	165.0	23.3	221.4	24.7	(272.6	23.9)
TNDL	R	20.6	31.1	74.9	30.0	131.2	31.4	185.1	32.9	239.0	31.4
	L	48.6	23.3	104.2	23.3	158.6	25.9	212.1	25.5	265.0	25.2
*TNCR	R	19.7	30.9	73.4	28.3	128.0	30.5	182.5	30.1	236.7	31.4
	L	45.8	23.0	101.1	22.7	155.1	24.8	209.5	24.4	263.4	25.1
TNCL	R	19.8	31.4	76.6	30.8	133.4	31.1	188.6	31.2	243.1	32.1
	L	48.1	25.4	105.3	24.2	161.2	25.2	216.3	25.6	266.3	24.9
BNDR	R	21.0	30.9	77.3	30.4	133.7	30.5	188.3	29.0	242.3	30.8
	L	49.7	24.4	105.9	23.8	161.1	23.5	214.9	24.8	269.6	24.8
BNDL	R	20.9	30.8	76.4	30.2	131.5	31.1	186.4	32.1	240.7	31.0
	L	49.1	23.8	103.6	23.2	158.8	26.0	213.9	25.3	263.2	25.6
BNCR	R	19.4	31.1	76.0	28.7	131.9	30.9	187.5	31.5	243.5	31.5
	L	47.8	22.5	104.3	22.8	159.5	25.5	215.6	25.0	265.9	25.0
BNCL	R	20.6	30.1	77.1	29.9	132.6	30.2	188.5	30.9	243.8	30.7
	L	49.1	24.7	105.4	22.4	160.3	24.6	216.4	24.7	264.6	24.0

(R) Right foot. (D) Distance from start(ins.)
(L) Left foot. (W) Width from L.H.wall (ins.)

Each trial is mean of 4-runs except trials (*)which are 3-runs.
Step 5,TNDR (L) is mean of 2-runs.
For data of individual runs see APPENDIX 2 (TABLE 100).

TABLE (94). MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES. (M.1)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.2

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
TWDR	R	61.9	29.4	129.0	28.1	193.2	18.0	255.9	21.8	-	-
	L	30.0	25.1	96.3	25.2	161.7	19.2	225.8	13.2	-	-
TWDL	R	59.2	30.2	126.5	31.1	193.4	41.2	259.3	32.7	-	-
	L	27.8	25.5	94.2	25.5	161.1	32.8	227.0	35.9	-	-
TWCR	R	55.2	22.9	109.5	19.0	171.4	24.3	232.8	27.6	-	-
	L	23.7	25.1	80.5	11.6	141.7	18.6	203.3	23.7	260.8	25.7
TWCL	R	53.4	35.8	118.3	38.8	182.9	33.9	248.3	32.4	-	-
	L	26.9	24.8	85.6	38.6	151.5	32.4	216.3	29.7	-	-
BWDR	R	60.9	29.0	127.6	28.8	191.4	20.2	252.6	25.3	-	-
	L	29.0	25.5	95.2	23.7	160.7	19.9	223.5	15.5	-	-
BWDL	R	61.0	30.1	127.3	30.9	191.1	39.0	256.3	36.3	-	-
	L	29.8	25.7	95.2	25.8	161.1	28.6	224.1	36.7	-	-
BWCR	R	55.3	20.9	117.7	20.2	182.0	25.4	245.7	28.3	-	-
	L	25.2	22.9	86.9	13.3	151.2	19.3	214.7	24.0	-	-
BWCL	R	58.4	35.9	125.2	35.9	189.9	34.3	255.1	31.9	-	-
	L	28.4	26.0	92.6	33.5	158.5	30.5	222.9	30.1	-	-
TNDR	R	61.4	29.3	129.5	29.5	195.8	28.4	262.8	30.2	-	-
	L	29.3	25.8	96.8	24.8	163.8	24.4	230.6	25.9	-	-
TNDL	R	62.5	29.4	131.6	29.2	199.3	29.4	267.3	29.8	-	-
	L	29.6	25.9	98.0	25.1	166.3	26.0	234.0	26.5	-	-
TNCR	R	59.6	28.8	125.8	29.3	191.3	28.7	256.6	29.7	-	-
	L	28.4	23.9	93.4	24.5	159.3	24.8	224.9	25.8	-	-
TNCL	R	58.5	30.4	126.4	30.6	192.7	29.6	259.0	30.3	-	-
	L	26.4	25.2	93.4	26.3	159.5	26.3	226.8	26.3	-	-
BNDR	R	59.3	30.0	125.5	30.0	190.7	29.7	256.6	30.0	-	-
	L	28.2	25.8	93.4	25.6	159.2	24.7	224.1	26.0	-	-
BNDL	R	61.7	28.9	130.9	31.1	197.8	30.4	264.2	30.2	-	-
	L	28.9	25.1	97.7	26.1	165.4	26.7	232.6	26.0	-	-
BNCR	R	60.8	29.0	129.4	30.5	197.3	30.0	263.6	30.8	-	-
	L	28.5	24.9	96.6	25.1	164.2	26.8	232.1	26.7	-	-
BNCL	R	62.1	30.8	129.2	29.5	197.2	28.5	263.8	29.4	-	-
	L	30.4	25.9	96.8	25.3	163.9	25.3	231.5	25.1	-	-

(R) Right foot. (D) Distance from start (inches).
(L) Left foot. (W) Width from L.H.wall (inches).

Each trial is mean of 4-runs.
For data of individual runs see APPENDIX 2 (TABLE 101).

TABLE (95). MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES. (M.2)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.3

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
		D	W	D	W	D	W	D	W	D	W
TWDR	R	55.7	27.5	122.4	27.9	186.0	20.5	247.4	22.7	-	-
	L	23.8	23.4	89.5	23.0	154.4	23.0	216.6	10.3	-	-
TWDL	R	55.0	29.3	122.9	28.4	184.4	38.3	246.2	37.0	-	-
	L	22.3	24.0	88.1	24.3	155.7	22.8	215.4	41.2	-	-
TWCR	R	51.6	23.9	111.2	24.6	178.2	29.0	244.6	27.8	-	-
	L	22.7	23.0	81.4	10.6	144.4	23.0	210.7	24.2	-	-
TWCL	R	49.0	36.9	111.1	36.1	175.5	28.8	239.4	27.8	-	-
	L	22.3	24.9	80.0	39.7	142.6	27.4	207.5	23.8	-	-
BWDR	R	57.0	27.7	123.7	28.2	188.0	19.9	249.9	23.3	-	-
	L	23.8	22.9	90.5	23.4	155.8	22.6	218.9	12.8	-	-
BWDL	R	54.8	29.2	119.6	26.4	181.7	36.8	242.5	35.6	-	-
	L	23.3	24.4	87.5	23.6	154.6	23.4	212.1	39.3	269.4	23.7
BWCR	R	51.2	20.7	109.9	26.9	175.9	26.4	243.7	27.2	-	-
	L	22.5	22.9	81.5	11.6	143.1	21.5	208.4	22.0	271.4	22.0
BWCL	R	51.9	36.6	114.7	34.0	180.2	29.8	247.1	28.1	-	-
	L	23.9	24.2	83.4	38.0	146.5	26.1	213.0	23.5	-	-
TNDR	R	56.2	28.5	124.2	26.9	192.3	25.8	258.2	26.6	-	-
	L	22.8	22.4	90.5	22.8	157.7	22.7	225.1	21.0	-	-
TNDL	R	54.7	28.6	121.5	28.5	188.6	29.2	255.9	29.0	-	-
	L	22.9	24.5	87.9	23.8	155.5	24.4	223.1	24.8	-	-
TNCR	R	57.5	28.3	126.6	28.0	195.0	29.1	262.0	28.5	-	-
	L	25.0	23.2	92.1	23.3	161.1	23.8	227.9	25.0	-	-
TNCL	R	56.7	30.2	125.1	28.8	192.8	27.9	258.1	26.5	-	-
	L	24.0	24.7	91.2	25.2	158.9	23.7	225.6	22.5	-	-
BNDR	R	57.5	28.2	127.5	28.0	197.1	26.7	261.9	25.4	-	-
	L	24.4	22.7	92.2	23.4	162.3	23.4	232.4	21.8	-	-
BNDL	R	57.9	29.3	125.9	30.1	193.2	30.5	258.9	27.3	-	-
	L	24.8	24.3	91.6	24.9	159.9	26.4	226.7	25.3	-	-
BNCR	R	55.1	28.6	122.8	28.2	191.2	27.8	259.0	28.5	-	-
	L	23.4	23.3	88.4	23.3	155.9	22.9	225.0	23.3	-	-
BNCL	R	55.3	31.1	122.0	28.8	189.4	28.4	254.3	27.3	-	-
	L	23.4	25.2	84.1	24.8	155.8	24.7	222.5	22.4	-	-

(R) Right foot. (D) Distance from start (inches).
(L) Left foot. (W) Width from L.H.wall (inches).

Each trial is mean of 4-runs.
For data of individual runs see APPENDIX 2 (TABLE 102).

TABLE (96). MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES. (M.3)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.1

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TWDR		D	W	D	W	D	W	D	W	D	W
Run 1	R	23.2	28.1	73.9	27.5	126.7	24.5	177.7	16.2	225.8	27.3
	L	48.5	24.8	100.1	26.0	150.8	13.1	203.3	21.0	250.1	25.8
Run 2	R	22.6	27.4	69.3	28.0	125.3	26.0	174.6	16.5	224.2	24.5
	L	48.7	23.9	99.3	23.8	149.4	13.9	199.1	19.8	249.1	23.0
Run 3	R	22.4	27.8	75.6	28.3	128.3	25.1	179.3	14.5	229.2	24.0
	L	48.9	24.7	102.0	25.5	152.6	14.1	204.5	15.8	254.2	23.1
Run 4	R	24.7	26.9	74.9	27.1	128.3	24.8	178.0	13.7	227.7	26.3
	L	50.1	23.2	102.2	23.8	153.9	13.4	202.7	17.6	252.8	25.5
MEAN	R	23.2	27.6	73.4	27.7	127.1	25.1	177.4	15.2	226.7	25.5
	L	49.0	24.1	100.8	24.8	151.7	13.6	202.4	18.5	251.5	24.3

TWDL

Run 1	R	23.2	26.7	72.5	28.5	124.2	30.0	170.0	41.0	220.8	32.4
	L	47.9	24.2	100.0	25.3	148.0	28.1	196.4	32.1	245.5	26.5
Run 2	R	23.2	27.5	76.0	26.1	128.1	29.4	176.0	38.8	225.5	28.4
	L	50.4	23.5	101.8	21.1	152.5	35.5	199.8	27.9	249.8	24.6
Run 3	R	23.2	27.3	75.3	29.4	126.2	32.9	177.7	40.1	229.0	29.8
	L	49.0	26.7	100.7	26.6	151.8	37.4	202.4	29.4	254.5	25.1
Run 4	R	24.9	27.1	77.6	28.0	130.0	32.4	180.7	41.8	232.6	32.4
	L	51.2	25.0	103.3	24.0	155.7	38.7	205.1	31.9	258.1	30.0
MEAN	R	23.6	27.1	75.3	27.9	127.1	31.0	176.1	40.4	226.9	30.7
	L	49.6	24.8	101.4	24.2	151.7	34.9	200.9	30.3	251.9	26.5

TWCR

Run 1	R	16.0	31.3	62.1	15.1	109.7	25.2	160.5	28.1	210.1	30.2
	L	38.6	20.5	85.4	15.4	135.4	23.4	185.4	26.2	233.9	27.7
Run 2	R	19,9	28.0	64.1	13.7	109.7	25.5	158.8	28.8	207.2	31.1
	L	40.2	17.7	87.5	16.3	134.7	24.4	183.3	27.9	232.0	27.6
Run 3	R	19.0	27.4	68.0	14.1	117.6	24.0	170.0	24.5	222.5	29.4
	L	43.1	17.5	93.2	16.4	144.2	22.1	196.0	26.3	247.4	26.0
Run 4	R	16.1	28.9	63.2	15.9	112.3	22.3	163.0	24.9	211.7	27.0
	L	38.9	19.4	86.5	14.2	138.4	20.5	187.7	23.0	236.3	25.0
MEAN	R	17.7	28.9	64.3	14.7	112.3	24.2	163.0	26.6	212.9	29.4
	L	40.1	18.8	88.1	15.6	138.2	22.6	188.1	25.8	237.4	26.6

TABLE (97.a) MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES: INDIVIDUAL RUNS. (F.1)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.1

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TWCL		D	W	D	W	D	W	D	W	D	W
Run 1	R	21.0	29.2	67.5	39.5	119.5	33.5	170.4	30.2	221.2	29.1
	L	44.8	29.7	92.9	32.0	144.8	28.6	196.2	26.7	246.7	24.9
Run 2	R	20.9	26.8	63.9	40.7	114.6	30.8	165.4	28.6	216.2	27.8
	L	41.0	30.2	88.2	30.6	139.5	26.9	191.2	25.7	241.7	24.5
Run 3	R	18.4	30.4	66.2	43.1	117.3	32.0	167.0	29.9	216.8	28.8
	L	43.0	35.3	91.2	33.8	141.8	27.7	192.8	26.8	242.9	25.4
Run 4	R	19.1	29.5	65.6	43.0	118.4	33.9	169.5	30.1	222.9	30.0
	L	42.5	32.2	91.0	34.9	143.5	28.8	196.9	27.6	247.7	25.3
MEAN	R	19.8	28.9	66.5	41.5	117.4	32.5	168.0	29.7	219.3	28.9
	L	42.8	31.8	91.3	32.8	142.4	28.0	194.3	26.7	244.9	24.5

BWDR

Run 1	R	22.6	26.0	72.9	26.5	121.9	26.5	169.1	17.4	219.6	26.7
	L	48.0	24.0	97.2	23.4	143.8	16.0	194.4	21.5	243.9	25.4
Run 2	R	20.8	27.6	71.9	27.4	124.8	26.3	173.1	14.9	217.2	30.0
	L	46.9	24.7	97.8	25.3	148.1	16.1	197.7	20.5	242.5	26.3
Run 3	R	24.4	27.0	77.8	25.6	129.6	24.3	179.5	17.4	230.0	24.8
	L	49.9	23.5	103.6	23.3	153.4	13.3	204.9	19.2	254.7	23.8
Run 4	R	23.4	26.2	73.5	26.4	124.5	29.0	173.7	16.5	222.1	25.7
	L	47.9	23.7	99.3	26.1	147.5	17.4	198.0	18.8	245.8	25.5
MEAN	R	22.8	26.7	74.0	26.5	125.2	26.5	173.8	16.5	222.2	26.8
	L	48.2	23.9	99.5	24.5	148.2	15.7	198.7	19.9	246.7	25.2

BWDL

Run 1	R	20.1	28.6	71.6	27.4	122.5	29.3	170.8	37.5	221.7	30.2
	L	46.2	25.0	97.9	24.6	146.9	31.5	195.4	30.6	247.8	26.2
Run 2	R	24.1	25.8	75.7	25.8	126.1	30.2	176.1	39.5	228.1	29.9
	L	49.4	21.5	101.8	23.4	151.8	36.8	201.0	29.4	253.4	26.9
Run 3	R	22.3	27.8	73.7	28.6	123.5	30.4	171.5	41.4	218.0	29.8
	L	48.2	26.7	99.2	24.3	147.5	35.0	193.9	30.6	242.6	25.9
Run 4	R	22.8	29.0	76.6	29.0	129.3	32.3	182.6	41.3	233.4	30.0
	L	49.6	26.1	103.9	26.2	155.4	38.7	206.5	30.4	257.8	23.8
MEAN	R	22.3	27.8	74.4	27.7	125.3	30.5	175.2	39.9	225.3	29.9
	L	48.3	24.8	100.7	24.6	150.4	35.5	199.1	30.2	250.4	25.7

TABLE (97.b)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.1

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
BWCR		D	W	D	W	D	W	D	W	D	W
Run 1	R	19.8	26.3	66.1	17.2	116.4	23.4	167.5	26.2	217.5	29.3
	L	40.8	16.7	91.8	18.0	141.6	22.3	192.7	25.5	243.5	25.9
Run 2	R	15.7	28.6	61.6	15.6	110.9	26.1	160.1	26.0	208.5	26.8
	L	37.5	18.8	86.4	19.0	136.3	23.3	184.1	23.6	233.9	24.8
Run 3	R	17.0	26.5	67.0	16.2	116.5	27.0	168.3	28.3	220.6	22.9
	L	40.7	17.0	93.1	18.8	144.2	24.6	195.9	25.5	247.2	25.4
Run 4	R	19.1	26.3	65.7	16.5	114.4	24.9	163.8	27.0	211.8	28.6
	L	40.4	15.3	90.1	17.6	139.1	22.9	188.1	24.5	235.0	25.9
MEAN	R	17.9	26.9	65.1	16.4	114.5	25.3	164.9	26.9	214.6	26.9
	L	39.8	16.9	90.3	18.3	140.3	23.3	190.2	24.8	239.9	25.5

BWCL

Run 1	R	20.8	28.2	68.0	38.3	119.6	25.7	172.1	24.1	223.2	25.3
	L	43.3	39.5	94.8	34.6	144.7	27.2	197.3	27.1	247.4	30.3
Run 2	R	18.2	36.7	63.3	40.7	113.5	32.7	164.6	29.8	216.0	29.2
	L	38.9	30.3	86.4	36.0	138.4	26.6	190.5	27.0	240.6	25.0
Run 3	R	18.3	31.7	66.9	43.0	118.4	34.5	170.4	31.4	223.2	29.1
	L	42.8	36.1	92.5	34.8	144.1	30.3	197.1	26.7	247.9	25.8
Run 4	R	20.0	34.6	70.1	38.9	117.1	30.8	172.3	28.3	223.2	28.2
	L	44.6	36.1	95.6	31.6	146.8	25.3	198.1	25.8	247.5	24.5
MEAN	R	19.3	32.8	67.0	40.2	117.1	30.9	169.8	28.4	221.4	27.9
	L	42.3	35.5	92.3	34.2	143.5	27.3	195.8	26.6	245.8	26.4

TNDR

Run 1	R	21.2	28.1	73.2	28.0	125.6	28.9	178.8	28.6	231.5	30.0
	L	47.9	24.9	99.9	25.4	152.5	26.1	204.9	26.8	257.1	27.8
Run 2	R	23.0	27.3	77.2	27.3	131.1	25.9	182.2	26.2	233.4	26.9
	L	50.2	25.7	103,7	23.8	156.8	21.9	207.7	24.2	257.9	22.9
Run 3	R	23.5	26.9	77.5	27.4	132.7	25.7	187.6	25.7	240.6	26.2
	L	49.8	23.9	104.3	23.3	160.1	23.4	214.2	23.3	266.5	24.2
Run 4	R	22.7	28.3	77.4	29.0	131.1	29.3	183.2	28.5	234.9	28.6
	L	50.1	26.3	104.3	25.7	157.9	25.9	209.2	25.0	259.7	26.0
MEAN	R	22.6	27.6	76.3	27.9	130.1	27.4	182.9	27.2	235.1	27.9
	L	49.5	25.2	103.0	24.5	156.8	24.3	208.9	24.8	260.3	25.2

TABLE (97.c)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. f.1

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TNDL		D	W	D	W	D	W	D	W	D	W
Run 1	R	20.0	29.1	71.4	29.0	123.7	29.9	176.8	30.0	227.9	28.5
	L	46.2	26.0	97.9	25.8	150.9	26.5	202.9	26.0	252.5	26.2
Run 2	R	20.9	28.3	72.1	28.5	124.1	28.3	174.4	27.7	225.8	28.8
	L	46.5	26.2	98.8	25.8	149.9	23.9	200.2	25.5	249.7	26.2
Run 3	R	23.2	27.4	76.2	28.3	132.0	29.5	186.4	28.9	240.0	27.8
	L	49.6	24.7	104.1	22.0	158.5	26.3	212.8	26.9	265.4	24.0
Run 4	R	23.3	27.4	75.4	28.5	130.0	26.6	182.9	26.6	236.6	25.7
	L	49.5	24.4	102.4	24.0	156.6	23.5	210.0	23.1	262.4	23.0
MEAN	R	21.8	28.0	73.8	26.6	127.4	28.6	180.1	28.3	232.5	27.7
	L	47.9	25.3	100.8	24.4	153.9	25.0	206.5	25.4	257.5	24.8

TNCR

Run 1	R	20.8	27.4	73.2	26.9	126.8	27.5	180.9	27.2	235.0	26.2
	L	46.8	24.4	99.7	24.2	153.8	24.5	207.6	23.5	260.5	24.5
Run 2	R	23.5	28.4	73.8	28.7	126.8	31.3	179.8	30.4	231.6	29.3
	L	48.1	26.0	100.3	28.4	152.5	28.8	204.9	27.7	256.0	26.6
Run 3	R	20.9	28.0	72.6	27.7	123.8	30.0	176.1	28.5	227.3	30.2
	L	47.4	24.8	98.3	25.9	150.5	25.7	202.1	28.5	251.5	24.3
Run 4	R	20.3	27.8	72.5	26.8	123.9	27.3	175.8	28.5	228.0	26.6
	L	46.2	23.8	98.6	23.7	150.3	24.7	202.0	25.2	253.0	21.8
MEAN	R	21.4	27.9	72.9	27.5	125.3	29.0	178.1	28.6	230.5	28.1
	L	47.1	24.7	99.2	25.5	151.8	25.9	204.1	26.2	255.2	24.3

TNCL

Run 1	R	21.1	28.0	71.0	29.4	122.6	28.8	172.5	27.9	223.0	28.0
	L	47.1	25.6	96.7	26.4	147.2	25.2	198.2	25.3	247.6	24.6
Run 2	R	19.7	28.7	69.4	29.2	121.7	28.8	172.9	28.3	222.6	28.8
	L	45.1	26.0	96.5	26.0	147.7	26.7	197.9	27.1	246.0	25.0
Run 3	R	22.4	28.5	73.6	29.1	125.9	29.5	178.5	30.3	231.5	29.1
	L	47.6	26.5	100.3	25.0	153.0	26.8	204.5	27.0	257.1	25.5
Run 4	R	22.0	28.4	75.0	27.3	127.1	28.1	178.0	29.0	228.3	27.8
	L	48.7	25.4	101.2	23.8	153.2	25.8	203.5	25.9	252.0	25.9
MEAN	R	21.3	26.4	72.2	28.7	124.3	28.8	175.5	28.8	226.3	28.4
	L	47.1	25.8	98.7	25.3	150.2	26.1	201.0	26.3	250.6	25.2

TABLE (97.d)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.1

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
BNDR		D	W	D	W	D	W	D	W	D	W
Run 1	R	22.4	28.3	74.1	28.3	127.0	28.3	180.0	26.3	231.5	29.0
	L	49.3	24.0	101.1	24.3	153.3	22.9	205.3	24.6	256.9	28.0
Run 2	R	23.5	26.1	77.0	27.3	130.4	26.3	182.9	25.5	234.2	26.0
	L	49.4	23.9	104.6	23.9	157.0	23.0	207.8	23.0	258.5	23.9
Run 3	R	23.6	26.9	74.9	25.8	128.0	26.7	180.6	25.6	233.2	24.7
	L	48.2	23.7	101.4	23.0	154.1	23.9	206.6	22.5	257.9	22.3
Run 4	R	23.4	27.5	75.0	27.6	127.5	27.8	178.8	26.5	229.3	25.8
	L	49.0	24.2	102.3	26.9	152.4	24.0	204.0	18.5	254.8	23.9
MEAN	R	23.2	27.2	75.2	27.2	128.2	27.3	180.5	26.0	232.0	26.4
	L	48.8	23.9	102.3	24.5	154.2	23.4	205.9	22.1	257.0	24.5

BNDL

Run 1	R	21.6	26.7	72.2	28.7	124.5	30.6	175.8	29.2	227.3	27.3
	L	47.5	25.1	99.2	26.1	149.4	27.7	202.1	25.1	252.5	24.2
Run 2	R	23.5	27.1	76.6	26.4	129.9	28.5	184.5	26.9	237.4	26.6
	L	50.9	22.2	104.1	24.1	157.7	24.7	210.4	24.8	262.4	24.8
Run 3	R	22.4	28.6	73.8	28.2	126.7	28.3	177.8	28.8	228.9	26.7
	L	49.4	25.6	100.1	25.4	152.2	25.4	203.2	25.9	253.9	23.5
Run 4	R	21.6	27.8	71.7	26.8	123.4	28.5	173.9	27.4	223.0	27.7
	L	46.1	23.4	97.9	24.7	150.1	25.8	199.7	24.4	247.6	25.0
MEAN	R	22.3	27.5	73.5	27.5	126.1	28.9	177.9	28.1	229.1	27.0
	L	48.5	24.1	100.3	25.1	152.3	25.9	203.8	25.0	254.1	24.4

BNCR

Run 1	R	22.9	27.7	73.3	28.2	125.7	29.4	177.3	29.0	230.0	29.4
	L	49.0	26.0	100.5	25.8	151.8	26.5	202.9	27.6	254.1	25.9
Run 2	R	23.7	27.5	76.8	27.7	128.8	30.0	179.2	29.2	230.4	29.9
	L	49.4	24.1	103.3	26.8	154.6	26.5	205.0	26.6	255.2	25.9
Run 3	R	24.6	27.5	79.9	28.1	133.8	29.1	188.8	29.2	241.9	28.4
	L	51.8	25.3	106.6	25.1	161.4	28.0	214.6	26.5	267.6	25.6
Run 4	R	22.8	27.6	76.9	27.3	130.5	29.7	184.3	29.3	236.1	29.3
	L	49.9	25.1	104.0	25.5	157.7	28.1	210.7	26.9	260.7	26.5
MEAN	R	23.7	27.5	76.7	27.8	129.7	29.5	182.4	29.2	234.6	29.2
	L	49.9	25.1	103.6	25.8	156.4	27.3	208.3	26.9	259.4	25.9

TABLE (97 .e)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.1

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
BNCL		D	W	D	W	D	W	D	W	D	W
Run 1	R	25.0	26.5	75.0	29.1	127.1	27.8	178.4	28.3	229.4	27.0
	L	49.5	24.8	100.4	26.3	153.1	25.6	203.8	25.1	253.1	23.4
Run 2	R	23.4	28.1	75.0	28.0	129.0	26.6	179.5	27.2	230.8	27.8
	L	49.7	26.2	101.8	24.3	153.9	25.6	201.4	24.6	255.8	25.8
Run 3	R	21.7	27.9	74.0	29.3	128.3	27.9	181.2	28.1	233.8	27.6
	L	48.3	24.8	101.0	26.8	154.8	24.6	207.7	25.4	259.4	23.7
Run 4	R	23.4	28.4	77.9	29.6	134.2	29.3	188.6	28.3	242.5	27.0
	L	51.6	26.2	106.1	28.4	161.1	26.4	214.4	23.9	267.1	23.6
MEAN	R	23.4	27.7	75.5	28.9	129.6	27.9	181.9	27.9	234.1	27.3
	L	49.7	25.5	102.3	26.4	155.7	25.5	206.8	24.8	258.8	24.1

TABLE (97 .f) MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES: INDIVIDUAL RUNS. (F.1)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.2

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TWDR		D	W	D	W	D	W	D	W	D	W
Run 1	R	21.5	25.8	71.9	27.0	122.5	26.7	172.0	14.5	221.3	25.4
	L	47.1	21.4	98.6	24.3	146.8	16.3	197.2	17.1	248.2	24.3
Run 2	R	19.5	27.0	69.6	24.6	116.9	22.7	167.7	16.0	214.6	22.9
	L	43.6	21.3	93.7	21.2	139.4	16.7	190.6	14.0	240.5	23.8
Run 3	R	22.9	26.5	73.7	26.9	127.6	23.2	180.7	16.6	232.1	27.2
	L	47.7	22.8	101.2	22.8	154.1	15.5	207.2	19.1	262.1	26.6
Run 4	R	19.7	27.9	71.4	29.3	123.9	24.9	172.2	17.1	220.6	27.9
	L	45.8	26.3	99.2	25.2	147.2	17.4	197.0	19.3	247.3	28.0
MEAN	R	20.9	26.8	71.6	26.9	122.7	24.4	173.1	16.0	222.1	25.8
	L	46.0	22.9	98.1	23.3	146.9	16.5	198.0	17.3	249.5	25.7

TWDL

Run 1	R	20.7	28.9	71.2	31.6	120.8	37.3	169.2	40.6	216.4	33.6
	L	46.7	26.3	97.3	30.4	145.3	36.2	191.8	32.0	242.5	28.0
Run 2	R	20.3	29.0	72.5	30.6	124.4	37.7	175.7	41.8	226.5	34.1
	L	47.2	25.4	99.1	30.1	149.8	36.9	200.3	35.5	250.8	26.7
Run 3	R	21.2	28.6	71.8	30.1	123.7	33.2	173.9	41.8	224.2	35.3
	L	46.3	25.1	98.7	27.2	149.4	34.8	193.1	35.5	248.5	28.8
Run 4	R	21.6	27.0	73.5	30.5	125.4	34.3	175.0	40.0	223.9	32.0
	L	48.0	25.0	99.9	25.3	151.3	36.7	198.5	30.8	249.8	25.8
MEAN	R	20.9	28.4	72.2	30.7	123.5	35.6	173.4	41.0	222.8	33.7
	L	47.0	25.4	98.7	28.2	148.9	36.1	195.9	33.4	247.9	27.3

TWCR

Run 1	R	20.1	21.8	65.7	13.0	114.5	23.0	164.2	30.0	216.6	31.3
	L	41.7	12.1	90.8	14.5	140.7	24.0	191.2	13.8	244.0	27.0
Run 2	R	21.0	24.6	69.4	15.9	119.8	25.5	169.0	32.8	219.6	35.0
	L	44.0	14.7	96.2	15.9	140.2	25.4	194.6	31.3	244.8	29.6
Run 3	R	20.9	25.9	66.1	16.4	114.0	27.3	166.9	30.0	220.6	29.5
	L	41.4	16.3	90.4	19.3	140.7	26.0	193.7	25.7	249.0	24.8
Run 4	R	19.9	24.1	69.0	15.5	117.5	29.0	169.3	30.8	221.6	31.0
	L	43.9	14.4	95.7	18.7	143.5	27.5	195.9	27.6	247.4	25.9
MEAN	R	20.5	24.1	67.5	15.3	116.4	26.2	167.3	30.9	219.6	31.7
	L	42.7	14.4	93.3	17.1	141.2	25.7	193.9	28.0	246.3	26.8

TABLE (98.a) MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES: INDIVIDUAL RUNS. (F.2)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.2

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TWCL		D	W	D	W	D	W	D	W	D	W
Run 1	R	16.0	33.8	63.9	41.0	115.1	36.8	167.0	33.8	217.6	15.8
	L	40.8	35.5	89.8	35.0	141.2	33.2	192.8	29.3	244.2	26.8
Run 2	R	17.5	33.8	64.4	41.8	113.6	32.8	162.5	30.1	213.8	25.7
	L	41.1	37.0	88.9	38.8	138.7	26.8	189.3	24.3	240.0	22.2
Run 3	R	17.6	33.7	65.7	42.5	114.7	33.0	165.1	28.8	216.4	27.4
	L	42.4	37.2	89.8	33.0	139.3	28.0	191.0	24.6	244.6	23.9
Run 4	R	19.1	30.4	68.2	41.2	121.3	35.3	174.8	31.5	228.8	28.5
	L	43.9	34.8	94.4	33.9	147.3	30.0	201.9	26.3	257.1	23.8
MEAN	R	17.5	32.9	65.5	41.6	116.2	33.7	167.3	31.0	219.1	28.3
	L	42.1	36.1	90.7	35.2	141.6	29.5	193.7	26.1	246.5	24.2

BWDR

Run 1	R	18.2	28.6	69.1	26.0	117.2	24.4	166.8	18.5	214.9	24.3
	L	43.6	24.2	93.4	21.0	141.8	17.5	191.5	16.4	241.6	23.3
Run 2	R	24.0	24.9	75.7	20.7	126.9	18.3	178.8	17.3	227.8	24.2
	L	48.9	18.8	101.6	16.5	152.7	14.1	203.9	16.0	254.7	23.7
Run 3	R	20.1	29.9	71.3	28.9	123.9	22.6	174.7	17.7	223.3	28.8
	L	45.8	26.8	98.2	22.3	149.2	16.8	199.4	19.6	251.2	26.3
Run 4	R	21.2	28.8	74.0	27.7	128.4	23.2	179.9	18.0	231.1	28.3
	L	47.7	24.7	101.1	21.9	153.8	14.3	207.0	19.1	260.6	26.7
MEAN	R	20.9	28.0	72.5	25.8	124.1	22.1	175.0	17.9	224.3	26.4
	L	46.5	23.6	98.5	20.4	149.4	15.7	200.4	17.8	252.0	25.0

BWDL

Run 1	R	18.7	28.5	66.9	30.6	116.1	36.0	166.2	40.0	216.3	35.3
	L	43.2	44.9	92.7	29.0	141.4	33.6	191.4	35.1	242.6	29.6
Run 2	R	19.6	28.3	69.3	33.9	121.1	39.3	171.6	40.7	222.2	38.3
	L	45.6	26.0	95.1	34.8	146.3	36.8	196.6	37.9	247.5	30.4
Run 3	R	20.9	29.5	74.2	32.0	126.4	37.4	178.6	40.1	234.1	34.2
	L	46.5	27.9	100.7	30.8	152.1	37.2	205.3	32.2	260.7	28.8
Run 4	R	22.0	28.1	75.5	29.3	128.6	34.5	181.3	42.5	233.1	34.4
	L	49.1	24.7	103.0	26.2	154.9	38.4	206.0	34.5	259.6	25.6
MEAN	R	20.3	28.6	71.5	31.4	123.0	36.8	174.4	40.8	226.4	35.5
	L	46.1	25.9	97.9	30.2	148.7	36.5	199.8	34.9	252.6	28.6

TABLE (98 .b)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.2

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
BWCR		D	W	D	W	D	W	D	W	D	W
Run 1	R	19.9	24.2	66.8	16.8	115.6	24.7	165.1	28.6	215.0	29.2
	L	43.4	15.9	92.0	17.6	140.8	23.6	191.0	25.2	241.1	26.6
Run 2	R	21.2	21.3	68.8	17.5	117.7	29.6	168.3	30.8	217.1	32.0
	L	44.4	14.8	90.0	21.3	142.8	28.0	193.7	28.1	243.0	26.8
Run 3	R	22.4	22.8	72.8	16.4	124.6	25.5	178.7	28.0	232.7	27.8
	L	46.8	13.1	98.9	16.6	151.9	24.1	206.5	23.1	261.6	22.2
Run 4	R	19.8	26.1	66.2	18.2	115.5	21.8	167.2	26.0	217.5	29.9
	L	41.9	18.2	91.3	15.4	141.7	19.7	193.1	23.8	244.8	27.6
MEAN	R	20.8	23.6	68.6	17.2	118.3	25.4	169.8	28.3	220.6	29.7
	L	44.1	15.5	93.0	17.7	145.8	23.8	196.1	25.0	247.6	25.8

BWCL

Run 1	R	16.3	33.2	65.0	39.7	115.8	34.5	166.4	31.2	217.7	28.4
	L	41.4	33.0	90.8	33.8	141.1	29.3	192.3	26.2	243.5	24.0
Run 2	R	17.6	32.8	65.8	43.4	116.1	36.8	166.3	32.3	215.7	31.4
	L	42.6	36.2	91.3	35.8	140.7	31.2	190.3	27.3	241.8	27.5
Run 3	R	22.0	32.8	71.7	39.8	126.8	32.5	180.3	31.4	234.2	29.3
	L	47.2	34.7	98.1	31.3	153.9	28.9	207.1	26.0	262.1	24.9
Run 4	R	17.8	32.5	68.4	40.7	121.3	32.5	173.4	31.1	227.5	32.8
	L	43.7	35.3	94.1	33.0	146.4	26.9	200.5	28.3	255.5	27.7
MEAN	R	18.4	32.8	67.7	40.9	120.0	34.1	171.6	31.5	223.8	30.5
	L	43.7	34.8	93.6	33.4	145.5	29.1	197.5	26.9	250.7	26.0

TNDR

Run 1	R	19.4	30.5	70.5	30.1	125.1	30.2	180.0	29.2	233.8	30.8
	L	45.0	27.4	99.4	25.7	152.8	25.7	207.5	26.3	262.9	26.4
Run 2	R	20.4	28.1	70.1	27.8	121.6	27.1	172.8	26.8	223.7	26.5
	L	45.3	24.4	96.7	22.1	146.5	24.6	198.4	22.9	250.5	23.5
Run 3	R	20.0	27.9	71.9	28.4	126.1	29.5	180.6	31.3	235.0	30.9
	L	46.8	24.4	99.0	24.6	153.0	26.5	207.3	27.6	263.2	26.4
Run 4	R	21.3	26.3	72.6	28.5	126.6	28.0	181.7	29.2	237.2	29.6
	L	47.2	23.3	100.5	23.4	155.1	24.9	209.5	25.8	263.8	26.0
MEAN	R	20.2	28.2	71.3	28.7	124.8	28.7	178.8	29.1	233.4	29.4
	L	46.0	24.9	98.9	23.9	151.8	25.4	205.7	25.6	260.0	25.6

TABLE (98.c)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.2

TRIAL / TNDL		Step 1 D	Step 1 W	Step 2 D	Step 2 W	Step 3 D	Step 3 W	Step 4 D	Step 4 W	Step 5 D	Step 5 W
Run 1	R	19.9	30.2	72.9	31.1	127.8	32.3	182.5	29.8	236.2	28.9
	L	46.5	27.8	101.8	29.3	155.6	28.0	210.2	26.4	264.0	26.1
Run 2	R	20.1	27.8	72.6	30.0	125.3	31.7	179.1	32.6	230.9	31.0
	L	47.3	26.0	99.7	27.3	152.3	30.0	205.0	28.8	257.5	25.7
Run 3	R	22.3	28.2	73.8	31.3	128.8	32.1	182.5	30.4	237.3	30.3
	L	48.2	25.8	102.3	28.1	156.3	27.7	210.2	27.3	263.6	26.8
Run 4	R	22.1	26.9	74.1	28.1	128.9	32.3	185.2	32.1	239.8	30.4
	L	48.8	23.5	102.6	26.9	160.4	28.5	212.3	27.6	266.2	26.3
MEAN	R	21.1	28.2	73.3	30.1	127.7	32.1	182.3	31.2	236.0	30.0
	L	47.7	26.3	101.6	27.9	156.2	28.6	209.4	27.5	262.8	26.2

TNCR

Run 1	R	19.3	29.5	68.7	28.7	120.1	29.7	172.1	29.8	223.4	29.4
	L	43.9	27.5	95.2	25.7	146.7	27.0	199.1	26.3	251.5	25.8
Run 2	R	19.9	28.0	70.7	28.3	123.7	29.7	175.5	29.2	228.3	27.3
	L	46.0	24.7	98.5	24.8	150.0	25.3	202.2	29.9	257.2	23.5
Run 3	R	20.5	28.4	75.1	29.8	131.8	31.5	188.0	32.5	243.7	30.0
	L	48.9	24.3	103.8	27.7	159.1	28.7	215.6	27.5	269.5	24.7
Run 4	R	20.9	28.3	76.7	29.2	134.6	31.0	189.9	29.3	245.3	29.1
	L	49.2	24.7	105.8	25.7	162.9	25.4	217.2	25.1	272.2	26.3
MEAN	R	20.1	28.6	73.3	29.0	127.5	30.5	181.3	30.2	235.2	28.9
	L	47.0	25.3	101.8	26.0	154.7	26.8	208.5	27.2	262.6	25.1

TNCL

Run 1	R	20.5	29.1	73.0	29.7	127.0	29.6	180.2	28.6	233.9	28.7
	L	47.0	26.6	101.2	26.3	154.4	26.5	207.0	25.3	260.9	26.0
Run 2	R	21.0	27.3	71.8	31.8	126.4	31.1	176.6	31.8	228.2	32.3
	L	47.5	26.7	99.3	29.0	151.1	27.6	202.1	28.8	255.3	27.1
Run 3	R	20.6	28.4	74.9	31.4	130.9	30.9	186.3	28.8	238.5	28.5
	L	48.2	26.0	103.6	28.5	159.9	26.9	213.2	24.0	267.0	25.8
Run 4	R	22.3	28.7	75.4	29.3	129.9	30.4	183.8	30.3	237.8	28.6
	L	49.1	26.4	104.1	25.5	157.8	27.8	211.8	25.5	265.5	26.7
MEAN	R	21.0	28.4	73.8	30.5	128.5	30.5	181.7	29.8	234.6	29.5
	L	48.0	26.4	102.0	27.3	155.8	27.2	208.3	25.9	262.2	26.4

TABLE (98.d)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.2

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
BNDR		D	W	D	W	D	W	D	W	D	W
Run 1	R	18.7	27.8	70.1	28.7	123.0	29.9	174.9	31.3	226.7	34.1
	L	45.1	25.5	97.9	24.6	148.4	27.3	201.3	31.5	252.6	29.0
Run 2	R	19.2	30.3	69.5	29.0	123.1	28.4	175.1	29.0	226.5	28.1
	L	45.7	25.7	97.6	25.0	148.8	25.9	201.9	25.3	253.1	23.2
Run 3	R	19.2	29.0	69.8	29.1	123.9	28.3	178.6	26.9	233.3	28.7
	L	44.7	26.8	97.8	24.5	151.1	24.4	206.2	25.1	262.4	26.2
Run 4	R	21.8	28.8	76.1	29.1	133.1	29.5	188.0	30.0	243.7	32.6
	L	49.2	24.7	104.8	25.6	161.6	25.6	215.6	27.4	269.8	28.6
MEAN	R	19.7	29.0	71.3	29.0	125.8	29.0	179.1	29.3	232.5	30.9
	L	46.2	25.7	99.5	24.9	152.4	25.7	206.2	27.3	259.4	26.8

BNDL

Run 1	R	19.6	29.0	71.0	31.0	123.7	31.7	177.1	31.5	230.6	30.5
	L	45.9	26.4	98.1	27.9	151.1	28.6	204.7	27.8	258.8	26.8
Run 2	R	20.6	28.0	74.4	30.1	128.8	33.3	182.9	32.5	239.0	34.1
	L	48.9	25.8	101.7	29.5	155.1	30.1	210.7	29.3	266.8	29.8
Run 3	R	24.8	29.2	77.5	31.0	130.9	31.5	186.1	28.7	242.5	29.4
	L	49.5	27.2	104.6	27.7	158.6	27.3	213.5	24.1	268.9	27.1
Run 4	R	19.7	27.8	72.4	28.0	126.2	31.4	181.0	34.0	236.1	30.3
	L	46.4	24.7	99.6	26.5	154.1	30.0	208.8	30.3	264.4	25.4
MEAN	R	21.2	28.5	73.8	30.0	127.4	32.0	181.7	31.7	237.0	31.0
	L	47.7	26.0	101.0	27.9	154.7	28.9	209.4	27.9	264.7	27.1

BNCR

Run 1	R	20.7	27.1	73.0	28.2	126.0	29.9	182.7	28.1	236.5	29.9
	L	48.8	23.7	101.0	25.4	155.6	27.4	209.3	24.7	264.5	27.4
Run 2	R	21.2	25.8	74.1	26.8	127.8	32.8	181.4	33.4	238.4	32.4
	L	46.6	22.1	101.6	25.2	155.1	30.3	209.6	30.5	265.8	26.0
Run 3	R	21.9	25.6	75.9	26.6	130.7	25.9	185.5	26.7	239.2	27.9
	L	48.1	23.0	102.6	23.5	159.1	22.8	212.9	24.2	266.2	23.7
Run 4	R	22.5	25.1	75.9	25.1	128.8	25.5	182.0	27.1	236.9	29.2
	L	49.0	21.2	102.1	21.5	155.1	23.4	210.1	23.6	262.7	27.3
MEAN	R	21.5	25.9	74.7	26.7	128.3	28.5	182.9	28.8	237.7	29.8
	L	48.1	22.5	101.8	23.9	156.2	25.9	210.5	25.7	264.8	26.1

TABLE (98.e)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.2

TRIAL		Step 1		Step 2		Step3		Step 4		Step 5	
BNCL		D	W	D	W	D	W	D	W	D	W
Run 1	R	20.0	29.6	74.1	29.4	128.7	30.0	183.3	30.4	239.0	30.8
	L	47.4	27.0	102.4	26.5	156.1	27.3	211.6	27.3	266.9	26.3
Run 2	R	19.7	28.8	70.5	30.1	123.3	27.2	174.4	28.3	225.1	29.8
	L	45.8	26.4	98.7	25.4	149.6	25.1	200.6	24.9	252.7	26.7
Run 3	R	22.6	30.6	74.8	31.6	129.5	29.8	185.0	26.7	239.2	28.2
	L	48.8	27.7	103.3	28.6	157.7	23.5	212.1	23.7	267.5	25.0
Run 4	R	18.4	30.5	71.0	33.1	124.0	31.0	176.8	29.2	229.7	29.7
	L	44.8	29.9	97.7	28.3	150.3	26.8	203.1	26.7	257.9	26.4
MEAN	R	20.2	29.9	72.6	31.0	126.4	29.5	179.9	28.6	238.2	29.6
	L	46.7	27.7	100.5	27.2	153.3	25.7	206.8	25.7	261.3	26.1

TABLE (98 .f).MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES: INDIVIDUAL RUNS. (F.2)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.3

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TWDR		D	W	D	W	D	W	D	W	D	W
Run 1	R	20.7	27.7	74.5	26.4	128.0	23.0	179.2	11.9	231.6	20.7
	L	47.8	24.9	101.6	22.3	154.5	13.9	205.2	13.5	260.3	18.5
Run 2	R	20.1	28.1	75.0	28.7	128.8	28.5	176.3	13.8	221.5	25.1
	L	46.4	26.3	103.0	27.1	151.9	21.4	199.1	11.2	249.6	25.7
Run 3	R	19.8	28.9	72.5	28.4	127.2	27.6	175.8	16.2	225.3	19.7
	L	45.6	26.3	99.5	24.5	151.6	21.7	200.3	9.9	253.9	20.3
Run 4	R	22.4	28.8	76.9	29.0	130.1	29.4	178.6	14.2	228.0	21.0
	L	49.0	25.1	103.5	26.2	153.6	20.0	202.0	11.8	255.6	19.8
MEAN	R	20.8	28.4	74.7	28.1	128.5	27.1	177.5	14.0	226.5	21.6
	L	47.2	25.6	101.9	25.0	152.9	19.2	201.6	11.6	254.8	21.0

TWDL

Run 1	R	19.7	28.1	74.0	27.8	127.4	28.5	181.8	42.7	235.7	32.0
	L	46.4	24.4	102.5	24.8	156.2	33.8	206.5	31.8	265.6	25.7
Run 2	R	23.6	28.5	77.7	29.5	132.4	28.8	181.9	39.6	234.2	31.5
	L	49.9	27.3	106.5	27.3	157.6	29.1	207.5	35.5	263.8	28.0
Run 3	R	19.7	28.8	75.4	29.4	132.3	30.7	183.8	42.3	241.2	29.6
	L	47.1	26.9	104.3	26.1	160.0	29.1	213.2	31.8	271.1	23.3
Run 4	R	22.4	28.4	77.6	27.0	129.4	27.7	177.7	41.2	228.5	31.0
	L	50.0	26.3	103.4	22.3	154.4	30.7	202.2	34.6	257.1	22.1
MEAN	R	21.3	28.4	76.1	28.4	130.4	28.9	181.3	41.4	234.9	31.0
	L	48.3	26.2	104.2	25.1	157.0	30.7	207.3	33.4	264.4	24.8

TWCL

Run 1	R	18.0	34.1	73.7	42.2	130.5	33.6	188.5	28.8	245.5	30.1
	L	45.2	38.7	102.2	35.7	160.3	29.6	217.4	26.5	272.7	26.5
Run 2	R	23.3	27.2	66.8	40.2	114.8	32.9	170.5	30.0	227.6	32.0
	L	46.4	28.1	87.6	34.3	142.7	28.4	199.1	28.0	255.2	26.9
Run 3	R	18.2	29.3	63.0	40.1	118.2	33.8	175.3	29.3	230.2	29.7
	L	42.5	27.2	90.2	34.5	147.4	29.6	202.2	27.4	258.8	27.5
Run 4	R	19.8	30.5	66.8	40.5	117.4	31.9	171.4	28.3	227.4	28.7
	L	43.6	30.5	91.0	32.5	143.3	27.2	198.5	24.7	257.1	25.4
MEAN	R	19.8	30.2	67.6	40.7	120.2	33.0	176.4	29.0	232.6	30.1
	L	44.4	31.1	92.7	34.2	148.4	28.7	204.3	26.6	260.9	26.5

TABLE (99 .a) MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES: INDIVIDUAL RUNS. (F.3)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.3

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TWCR		D	W	D	W	D	W	D	W	D	W
Run 1	R	21.0	24.3	71.9	12.5	129.1	22.4	186.8	25.6	243.6	26.5
	L	46.6	14.8	101.3	16.0	157.4	22.2	215.3	24.3	270.6	22.7
Run 2	R	18.6	29.2	64.9	15.6	112.3	23.6	167.0	27.6	221.4	30.1
	L	40.9	23.3	86.8	13.6	138.8	24.6	194.2	27.5	248.1	26.4
Run 3	R	20.6	27.8	64.4	16.3	116.4	21.5	173.2	25.0	229.8	25.9
	L	41.0	22.9	90.1	12.4	145.1	21.2	201.8	23.2	259.3	21.7
Run 4	R	16.0	29.5	60.6	18.7	111.9	20.6	166.9	25.3	222.4	27.0
	L	38.7	24.8	84.2	12.7	138.5	20.9	194.8	24.9	249.7	25.8
MEAN	R	19.1	27.1	65.4	15.7	117.4	22.0	173.4	25.9	229.3	27.4
	L	41.8	21.4	90.6	13.7	144.9	22.2	201.5	24.9	256.9	24.1

BWDR

Run 1	R	18.3	27.6	72.7	24.9	126.5	23.8	178.8	15.4	232.8	24.5
	L	45.5	23.2	99.8	22.1	152.5	14.2	206.2	16.4	262.0	24.8
Run 2	R	19.0	28.6	73.9	26.6	128.2	26.7	178.7	15.4	236.6	23.1
	L	45.5	26.7	100.9	23.7	153.0	19.2	204.5	15.9	259.8	22.7
Run 3	R	20.8	29.0	76.3	28.0	128.1	26.8	180.3	15.8	230.6	23.0
	L	48.1	27.2	102.4	24.9	153.7	20.5	204.5	14.5	258.4	24.0
Run 4	R	19.1	32.0	71.9	30.0	125.1	32.1	173.7	16.5	218.5	23.4
	L	45.1	30.0	100.1	28.5	149.9	23.7	196.1	11.4	245.4	24.1
MEAN	R	19.3	29.3	73.7	27.4	126.9	27.3	177.9	15.8	229.6	23.5
	L	46.1	26.8	100.8	24.8	152.2	19.4	202.8	14.5	256.4	23.9

BWDL

Run 1	R	22.2	27.7	77.4	26.9	130.5	36.4	185.5	42.7	240.6	35.6
	L	50.2	23.8	100.6	27.3	157.6	39.5	212.7	36.0	267.9	31.4
Run 2	R	18.2	29.1	71.7	28.4	127.5	28.6	180.6	39.2	234.4	30.4
	L	44.9	25.2	99.7	24.7	154.6	27.5	207.0	30.7	261.1	26.5
Run 3	R	21.5	26.0	74.9	29.0	129.4	30.7	180.0	39.5	233.1	33.1
	L	48.3	25.0	102.8	26.1	156.3	29.7	206.5	32.3	259.4	28.0
Run 4	R	23.3	28.6	77.5	28.8	132.1	33.5	184.6	40.5	237.9	29.0
	L	49.5	25.5	105.0	27.0	158.9	37.0	211.0	31.7	266.0	21.8
MEAN	R	21.3	27.8	75.4	28.2	129.8	32.3	182.6	40.5	236.4	32.0
	L	48.2	24.9	101.5	26.3	156.8	33.4	209.3	32.6	263.6	26.9

TABLE (99.b)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.3

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
BWCR		D	W	D	W	D	W	D	W	D	W
Run 1	R	20.2	29.7	66.0	17.6	116.0	17.2	171.0	24.9	223.8	28.1
	L	41.9	23.3	90.6	11.9	143.2	19.9	196.6	26.5	250.8	23.1
Run 2	R	17.0	30.3	57.3	19.4	108.4	21.3	164.6	26.5	222.5	29.7
	L	38.5	22.9	80.4	12.4	136.1	23.1	193.9	26.3	250.1	26.9
Run 3	R	17.7	28.3	67.1	14.8	117.8	23.9	173.7	26.2	229.1	25.6
	L	40.6	21.0	92.4	14.4	145.0	24.6	201.7	23.0	256.6	22.5
Run 4	R	19.2	26.2	63.0	15.4	113.8	25.6	168.9	24.6	224.6	27.0
	L	39.6	17.7	86.8	15.6	140.6	23.2	196.5	22.8	252.7	25.3
MEAN	R	18.5	28.6	63.3	16.8	113.9	21.9	169.5	25.5	224.9	27.6
	L	40.1	21.2	87.5	13.6	141.2	22.6	197.2	24.7	252.6	24.3

BWCL

Run 1	R	19.0	29.3	69.7	41.0	127.5	34.1	185.5	29.7	242.0	30.4
	L	45.7	29.1	99.2	32.6	157.1	28.9	213.3	27.0	269.7	26.7
Run 2	R	13.3	29.0	60.7	39.7	114.4	32.8	170.2	29.5	225.8	30.3
	L	37.9	28.3	86.7	35.1	142.4	27.8	197.7	27.4	254.1	25.5
Run 3	R	22.3	26.1	71.6	38.9	126.5	32.7	180.4	31.5	237.5	27.1
	L	48.0	26.4	98.9	31.7	152.6	28.7	209.3	26.9	265.9	22.6
Run 4	R	20.8	28.5	66.6	40.4	119.1	31.1	175.0	30.2	231.2	28.2
	L	45.3	24.9	92.3	33.5	147.3	28.4	203.2	26.6	260.2	22.8
MEAN	R	18.8	28.2	66.9	39.9	121.9	32.7	177.8	30.2	234.1	28.9
	L	44.2	27.1	96.8	32.7	149.8	28.4	205.8	26.9	262.4	24.3

TNDR

Run 1	R	22.2	27.9	77.0	27.0	132.4	26.1	186.4	21.8	231.4	27.2
	L	49.0	24.0	104.6	23.8	159.0	20.8	214.2	21.4	267.5	27.5
Run 2	R	19.8	28.2	74.1	29.9	128.7	26.0	184.1	20.9	238.9	28.9
	L	47.0	26.5	101.9	25.2	156.2	18.8	211.5	22.8	266.8	27.6
Run 3	R	21.0	25.8	77.0	26.1	132.8	25.2	189.9	22.0	244.2	24.8
	L	48.5	24.1	104.9	22.8	162.3	20.0	216.5	21.8	272.4	21.3
Run 4	R	20.9	28.4	76.1	25.7	132.4	22.5	185.6	20.9	240.0	26.9
	L	47.9	25.2	104.3	22.5	158.7	18.8	213.8	22.5	267.5	24.4
MEAN	R	20.9	27.6	76.0	27.2	131.6	24.9	186.5	21.4	241.1	26.9
	L	48.1	24.9	103.9	23.5	159.0	19.6	213.9	22.1	268.5	25.2

TABLE (99 .c)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.3

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TNDL		D	W	D	W	D	W	D	W	D	W
Run 1	R	20.0	29.1	73.7	28.8	129.2	28.5	179.7	36.3	232.9	31.1
	L	46.6	27.4	102.1	26.7	154.0	28.6	206.6	30.5	259.9	28.0
Run 2	R	20.5	29.1	74.4	29.8	129.8	30.4	183.2	35.0	238.7	30.4
	L	47.9	26.2	102.9	27.5	155.8	30.4	211.0	30.1	268.2	27.4
Run 3	R	21.7	28.7	77.5	27.5	133.6	31.0	188.8	29.5	242.8	26.6
	L	49.7	25.5	105.2	26.3	161.1	28.8	216.5	24.0	269.9	22.9
Run 4	R	19.0	28.5	73.4	29.6	129.4	33.2	183.4	33.1	237.8	29.1
	L	45.8	26.5	102.2	27.6	156.2	31.2	210.5	27.8	263.9	24.8
MEAN	R	20.3	28.8	74.7	28.9	130.5	30.7	183.8	33.5	238.0	29.3
	L	47.5	26.4	103.1	27.0	156.8	29.7	211.2	30.6	265.4	25.8

TNCR

Run 1	R	19.1	27.4	73.0	24.8	129.5	30.5	185.8	32.8	239.7	33.4
	L	45.8	24.5	101.9	25.3	158.0	29.8	212.3	30.4	267.9	29.3
Run 2	R	17.2	28.9	67.5	26.7	130.4	27.2	188.1	29.3	245.9	31.2
	L	44.2	25.8	101.3	24.9	159.7	25.9	216.8	28.0	272.9	28.8
Run 3	R	18.3	27.5	67.3	23.5	121.8	26.8	177.1	29.3	232.3	28.1
	L	41.2	21.6	94.4	21.6	150.1	25.5	205.2	27.2	260.6	24.0
Run 4	R	17.8	28.0	71.0	25.7	128.7	27.7	185.8	27.1	241.8	24.8
	L	43.8	23.6	99.6	23.4	157.5	26.2	215.3	22.6	268.9	21.8
MEAN	R	18.1	27.9	69.7	25.1	127.6	28.0	182.2	29.6	239.9	29.3
	L	43.7	23.9	99.3	23.8	156.3	26.8	212.4	27.0	268.0	25.9

TNCL

Run 1	R	19.3	28.7	74.7	31.9	132.2	30.2	189.9	28.5	244.6	30.8
	L	46.1	28.9	104.1	28.1	161.4	26.7	212.5	25.5	270.3	26.1
Run 2	R	19.0	28.9	69.1	34.9	125.0	30.5	180.7	30.6	236.5	30.6
	L	43.4	29.9	96.4	29.4	152.0	27.8	208.6	29.4	263.2	24.0
Run 3	R	18.1	30.0	69.1	32.8	123.1	31.2	176.8	29.6	242.2	29.7
	L	42.5	29.8	95.6	29.1	150.5	28.0	204.4	27.3	260.4	24.8
Run 4	R	17.7	29.8	70.1	34.2	126.8	28.8	183.8	29.8	240.4	29.4
	L	42.8	30.4	97.1	26.1	155.2	27.1	212.0	27.3	269.6	25.5
MEAN	R	18.5	29.3	70.7	33.4	126.8	30.2	182.8	29.6	240.9	30.1
	L	43.7	29.7	98.3	28.1	154.8	27.4	209.4	27.3	265.8	25.1

TABLE (99 .d)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.3

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
BNDR		D	W	D	W	D	W	D	W	D	W
Run 1	R	20.9	29.2	75.6	29.4	130.7	28.5	187.0	24.6	242.3	31.8
	L	47.7	27.2	108.3	26.1	158.5	24.3	214.3	25.5	269.2	29.9
Run 2	R	20.5	27.6	73.1	27.5	125.9	25.0	179.6	19.0	229.5	26.9
	L	46.0	25.9	100.1	23.9	152.4	19.5	204.1	19.6	257.6	25.8
Run 3	R	18.2	30.1	70.9	31.8	125.4	30.0	176.8	22.2	228.7	23.5
	L	44.1	28.2	98.1	27.8	149.1	22.9	203.4	21.1	256.2	20.8
Run 4	R	17.0	27.8	71.2	29.2	127.5	24.7	183.8	22.6	238.5	26.4
	L	43.5	27.3	99.8	24.7	156.1	20.2	210.6	22.5	265.3	23.4
MEAN	R	19.1	28.7	72.7	29.5	127.3	27.0	181.8	22.1	234.7	27.2
	L	45.3	27.1	101.5	25.6	154.0	21.7	208.1	22.2	262.1	24.9

BNDL

Run 1	R	21.4	26.8	76.6	30.6	132.0	33.0	187.0	36.1	241.6	35.3
	L	49.6	26.3	104.6	28.9	159.4	32.5	214.7	32.5	267.6	29.8
Run 2	R	22.5	27.5	77.5	26.4	133.6	28.6	187.7	31.9	241.9	28.6
	L	49.0	23.4	105.4	24.9	161.8	26.9	215.7	27.7	268.3	23.4
Run 3	R	21.6	27.4	75.3	28.0	131.9	30.0	186.2	34.2	241.2	27.2
	L	48.3	26.0	103.1	27.2	159.7	30.8	213.9	27.3	268.8	21.4
Run 4	R	21.6	28.0	77.9	28.7	133.9	30.9	186.6	34.0	239.8	26.7
	L	48.3	26.0	103.1	27.2	159.7	30.8	213.9	27.3	268.8	21.4
MEAN	R	21.8	27.4	76.8	28.4	132.8	30.6	186.9	28.5	241.1	29.4
	L	49.1	25.2	104.8	27.0	160.0	30.3	214.4	28.2	268.3	24.0

BNCR

Run 1	R	19.5	28.9	74.3	27.6	132.2	30.3	189.8	30.3	245.4	28.1
	L	44.3	25.6	102.0	25.4	160.1	28.3	217.7	26.0	269.7	25.6
Run 2	R	16.8	27.5	68.7	21.9	122.4	25.9	177.4	28.1	231.1	30.4
	L	42.1	21.9	95.5	20.1	149.4	24.7	204.6	25.4	257.6	28.2
Run 3	R	19.9	28.2	73.1	24.0	128.6	26.0	182.6	26.1	236.7	25.5
	L	45.3	23.0	100.9	22.1	155.3	22.9	210.0	21.9	265.5	25.3
Run 4	R	20.2	27.4	76.1	23.1	132.4	29.8	187.3	28.2	242.7	28.8
	L	47.5	24.6	104.2	23.6	160.4	26.7	216.0	24.4	268.7	24.0
MEAN	R	19.1	27.9	73.0	24.1	128.8	27.9	184.3	28.2	238.9	28.2
	L	44.8	23.8	100.6	22.8	156.2	25.6	212.1	24.4	265.4	25.7

TABLE (99.e).

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. F.3

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
BNCL		D	W	D	W	D	W	D	W	D	W
Run 1	R	19.6	29.1	72.3	31.3	127.9	29.5	182.9	27.3	238.7	29.1
	L	44.6	29.6	100.3	27.3	154.7	24.6	211.0	24.5	265.5	26.0
Run 2	R	18.4	31.1	70.1	33.0	126.6	30.4	182.2	30.3	238.9	31.4
	L	43.6	29.8	99.0	28.2	154.8	27.8	210.0	28.3	267.2	28.2
Run 3	R	18.6	31.8	73.0	35.4	131.3	31.9	188.5	30.0	245.2	30.1
	L	44.7	33.2	102.3	29.9	160.3	27.9	216.6	28.1	272.5	25.5
Run 4	R	17.1	32.5	71.1	32.6	127.5	30.3	182.6	29.3	238.7	30.6
	L	43.1	30.8	99.8	30.2	155.4	27.5	211.3	27.3	266.1	28.8
MEAN	R	18.4	31.1	71.6	33.0	128.3	30.5	184.0	29.2	240.3	30.3
	L	43.9	30.8	100.3	28.9	156.3	26.9	212.2	27.0	267.8	27.1

TABLE (99 .f)MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES: INDIVIDUAL RUNS. (F.3)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.1

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TWDR		D	W	D	W	D	W	D	W	D	W
Run 1	R	18.7	30.6	77.2	29.8	134.8	29.8	189.0	14.6	243.0	29.0
	L	49.0	22.7	107.2	23.2	162.3	15.6	218.1	16.8	271.1	24.2
Run 2	R	20.5	31.0	76.4	30.6	133.1	30.7	183.0	14.6	233.0	28.3
	L	47.9	23.8	105.5	24.3	156.6	15.3	209.2	16.2	260.7	22.4
Run 3	R	19.3	31.2	71.4	31.8	125.2	31.0	175.0	15.9	223.0	26.4
	L	45.4	24.1	98.6	23.0	150.0	18.4	201.3	9.8	250.4	22.3
Run 4	R	20.3	31.2	74.0	29.8	130.9	31.0	182.3	13.3	232.8	29.3
	L	46.9	23.4	103.0	22.6	155.4	16.2	208.8	16.4	260.0	23.7
MEAN	R	19.7	31.0	74.7	30.5	131.0	30.6	182.3	14.6	232.9	28.2
	L	47.3	23.5	103.6	23.3	156.1	16.4	206.8	14.8	260.5	23.1

TWDL

Run 1	R	19.5	31.3	73.2	30.3	128.0	33.5	180.0	43.8	231.1	32.7
	L	46.5	24.7	10L.7	23.7	154.6	34.5	205.2	33.0	256.8	24.5
Run 2	R	20.8	31.5	78.6	30.2	132.5	33.0	183.7	43.9	236.3	32.1
	L	49.7	23.9	105.9	23.3	158.2	33.4	209.8	31.1	263.1	24.7
Run 3	R	21.1	31.8	76.4	31.1	132.1	34.0	186.6	42.9	241.6	33.0
	L	48.6	24.7	104.7	24.6	160.3	35.7	214.0	30.0	268.2	25.9
Run 4	R	21.4	31.3	77.4	30.1	134.0	32.9	188.5	41.9	242.1	32.3
	L	49.4	23.7	105.5	23.5	160.7	36.1	215.5	29.4	270.7	25.6
MEAN	R	20.7	31.4	76.4	30.4	131.6	33.3	184.7	43.1	237.8	32.5
	L	48.5	24.2	104.4	23.8	158.4	34.9	211.1	30.9	264.7	25.0

TWCR

Run 1	R	15.4	32.2	66.1	15.4	120.7	24.1	176.6	29.9	234.3	29.6
	L	40.8	21.3	94.4	11.5	148.9	22.3	205.4	23.1	262.6	24.4
Run 2	R	18.5	31.9	68.6	15.9	122.3	20.8	179.2	29.7	235.8	29.9
	L	42.7	18.7	97.3	14.4	150.3	23.1	206.9	23.2	263.5	24.8
Run 3	R	19.1	31.4	71.0	15.4	123.7	23.3	179.3	27.9	234.7	29.1
	L	43.9	19.9	98.7	11.0	151.2	23.2	206.9	23.9	261.2	25.3
Run 4	R	18.4	31.1	70.8	13.7	125.5	25.2	183.2	28.5	239.7	30.6
	L	45.1	20.8	99.1	11.2	154.8	22.2	212.6	23.0	268.0	23.5
MEAN	R	17.9	31.6	69.1	15.1	123.0	23.3	179.5	29.0	236.1	29.8
	L	43.1	20.1	97.4	12.0	151.2	22.7	207.9	23.3	263.8	24.5

TABLE (100.a) MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES: INDIVIDUAL RUNS. (M.1)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.1

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TWCL		D	W	D	W	D	W	D	W	D	W
Run *1	R	42.0	34.0	94.7	43.9	148.6	31.8	203.6	31.6	259.5	32.6
	L	19.1	23.1	66.9	40.0	121.6	32.1	175.7	25.8	232.5	26.8
Run 2	R	19.3	29.9	70.2	40.9	126.1	36.2	181.5	32.5	236.7	33.4
	L	45.5	25.5	98.2	33.3	153.1	27.9	208.1	27.4	264.0	26.4
Run 3	R	16.5	31.2	64.6	42.3	118.6	33.4	174.3	30.5	228.1	30.5
	L	41.4	25.3	91.3	36.0	146.6	26.6	202.0	23.3	256.2	24.9
Run 4	R	19.6	29.9	69.4	42.1	123.6	36.5	176.9	30.7	231.6	32.0
	L	46.4	26.8	95.3	35.5	149.8	26.9	203.7	25.6	258.3	25.7
* MEAN	R	18.4	30.3	68.0	41.8	122.8	35.4	177.6	31.2	232.1	31.9
	L	44.4	25.9	94.9	34.9	149.8	27.1	204.6	25.4	259.5	25.7

(*Mean of Runs 2,3 and 4 only)

BWDR

Run 1	R	20.7	30.6	77.5	30.3	132.8	24.5	185.9	16.2	236.0	27.9
	L	49.8	23.7	105.9	33.2	159.3	12.7	211.5	16.7	262.2	23.3
Run 2	R	22.5	30.0	76.6	28.8	132.0	25.4	183.4	16.1	235.1	27.5
	L	50.6	22.7	104.8	22.4	157.1	13.6	209.3	16.6	262.5	22.9
Run 3	R	21.2	31.1	75.6	30.3	127.5	30.1	177.4	14.3	227.2	28.8
	L	49.6	23.3	102.3	24.3	152.7	15.5	204.0	17.2	254.7	24.9
Run 4	R	21.2	29.9	77.4	31.0	133.6	28.2	185.9	13.9	240.1	29.1
	L	50.0	23.9	106.1	24.9	160.4	14.9	214.1	17.9	269.9	24.6
MEAN	R	21.4	30.4	76.8	30.1	131.5	27.0	182.9	15.1	234.6	28.3
	L	50.0	23.4	104.7	26.2	157.4	14.2	209.7	17.2	262.3	23.9

BWDL

Run *1	R	48.1	30.2	104.6	30.0	157.3	37.9	213.0	40.5	267.1	32.9
	L	22.0	23.7	77.7	23.4	133.0	22.9	185.2	38.8	239.6	29.1
Run 2	R	19.4	30.5	75.3	30.1	130.6	33.2	185.1	42.4	239.4	31.2
	L	47.3	23.7	103.3	23.4	158.0	35.0	211.8	31.3	267.0	25.9
Run 3	R	20.1	30.0	74.4	29.3	127.8	30.0	178.2	44.1	229.7	33.2
	L	47.8	23.3	102.1	22.7	154.1	31.7	203.5	34.8	255.2	24.6
Run 4	R	21.5	31.3	75.3	29.8	128.3	30.3	179.5	42.4	230.3	31.1
	L	48.0	24.6	101.4	24.0	154.9	29.0	205.1	32.9	256.2	24.0
* MEAN	R	20.3	30.6	75.0	29.7	128.9	31.1	180.9	42.9	233.1	31.8
	L	47.7	23.8	102.3	23.4	155.6	31.9	206.8	33.0	259.4	23.8

(*Mean of Runs 2,3 and 4 only)

TABLE (100.b)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.1

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
BWCR		D	W	D	W	D	W	D	W	D	W
Run 1	R	17.0	31.0	69.9	17.3	122.6	27.0	179.5	28.3	235.3	29.2
	L	37.8	17.4	96.8	13.9	151.1	23.8	207.6	22.3	263.9	22.9
Run 2	R	18.7	30.3	69.4	14.8	121.8	27.6	174.9	28.8	241.2	29.5
	L	44.2	15.7	96.8	14.1	148.7	23.1	203.1	23.3	260.2	24.1
Run 3	R	16.7	30.9	66.6	16.0	116.8	25.5	170.7	29.8	225.5	30.3
	L	42.0	20.0	91.1	13.8	143.5	24.2	198.3	25.2	252.6	24.2
Run 4	R	18.7	31.7	69.3	16.1	119.9	29.6	174.5	30.7	228.0	29.2
	L	43.4	17.5	95.4	16.1	146.8	24.0	201.4	23.5	255.5	22.7
MEAN	R	17.8	31.0	68.8	16.1	120.2	27.4	174.9	26.9	232.5	29.5
	L	41.9	17.6	95.0	14.5	147.5	23.8	202.6	23.6	258.0	23.4

BWCL

Run 1	R	17.5	30.2	70.0	40.5	126.9	37.9	183.3	33.0	240.0	32.3
	L	44.4	26.2	98.0	25.3	154.6	28.7	211.3	26.6	267.9	24.9
Run 2	R	16.9	31.1	71.9	42.7	129.4	33.9	183.9	30.8	238.1	30.5
	L	45.3	29.8	99.8	34.7	156.1	26.3	211.2	24.4	265.8	26.1
Run 3	R	18.8	29.5	68.4	42.3	121.0	34.2	174.0	31.0	227.5	31.3
	L	45.0	28.6	95.5	34.1	147.9	26.8	200.5	25.4	254.0	24.5
Run 4	R	19.3	31.7	72.1	44.0	130.3	33.3	190.2	32.3	243.5	31.5
	L	46.1	30.1	100.1	31.2	159.5	26.0	217.1	24.7	271.3	23.6
MEAN	R	18.1	30.6	70.6	42.3	126.9	34.8	182.8	31.7	237.3	31.4
	L	45.2	28.7	98.3	33.8	154.5	26.9	210.0	25.2	264.7	24.8

TNDR

Run 1	R	19.0	31.4	75.2	30.7	134.0	30.0	189.6	29.2	244.3	30.1
	L	46.8	23.6	104.4	23.4	162.2	24.0	217.5	24.3	270.7	24.3
Run 2	R	20.2	31.7	77.7	29.3	135.4	30.3	192.7	29.1	247.5	31.6
	L	51.2	22.9	107.1	21.9	163.8	22.9	220.6	23.6	274.5	23.6
Run 3	R	21.7	31.9	79.6	31.6	136.7	30.3	195.1	30.6	251.4	31.9
	L	50.9	24.7	108.9	25.0	167.1	24.0	224.5	25.3	-	-
Run 4	R	24.4	30.9	82.2	29.9	138.7	29.5	195.1	31.1	251.4	32.3
	L	54.0	26.8	110.5	23.5	167.1	22.3	223.2	25.6	-	-
MEAN	R	21.3	31.5	78.6	30.3	136.2	30.1	193.1	30.0	248.6	31.4
	L	50.7	24.5	107.7	23.4	165.0	23.3	221.4	24.7	272.6	23.9

TABLE (100.c)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.1

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TNDL		D	W	D	W	D	W	D	W	D	W
Run 1	R	20.8	30.5	76.5	29.8	131.1	31.4	184.6	31.6	237.7	31.5
	L	48.8	23.4	105.6	23.2	158.4	25.1	211.9	24.2	262.9	25.9
Run 2	R	20.9	31.2	70.9	30.4	131.9	31.3	185.4	33.3	238.8	29.7
	L	49.1	22.9	103.6	23.1	158.0	25.7	211.4	26.3	264.7	24.2
Run 3	R	20.7	31.8	78.1	30.2	133.1	30.7	187.3	34.5	241.7	32.8
	L	49.1	23.6	104.9	22.5	160.8	27.6	214.5	25.8	267.7	25.0
Run 4	R	19.9	31.1	74.4	29.9	130.0	32.1	183.1	32.5	238.0	31.7
	L	47.7	23.3	102.8	24.5	157.4	25.1	210.4	25.9	264.9	25.7
MEAN	R	20.6	31.1	74.9	30.0	131.2	31.4	185.1	32.9	239.0	31.4
	L	48.6	23.3	104.2	23.3	158.6	25.9	212.1	25.5	265.0	25.2

TNCR

Run *1	R	46.6	30.2	99.7	29.6	155.4	31.5	210.5	30.0	265.4	32.3
	L	20.7	24.5	73.9	21.2	128.2	24.2	184.5	23.3	239.7	25.0
Run 2	R	20.3	31.3	76.5	28.7	133.8	29.5	189.2	30.0	245.1	30.0
	L	47.1	23.6	105.2	22.5	161.6	24.6	217.4	24.6	272.1	23.9
Run 3	R	19.3	31.5	70.0	28.8	123.4	30.8	175.0	30.0	227.0	31.4
	L	44.2	22.8	97.5	22.3	149.3	24.5	200.4	24.5	252.7	25.0
Run 4	R	19.4	29.8	73.8	27.6	127.0	31.3	183.5	30.5	238.1	32.9
	L	46.0	22.5	100.7	23.2	154.6	25.3	210.7	24.0	265.3	26.3
* MEAN	R	19.7	30.9	73.4	28.3	128.0	30.5	182.5	30.1	236.7	31.4
	L	45.8	23.0	101.1	22.7	155.1	24.8	209.5	24.4	263.4	25.1

(*Mean of Runs 2,3 and 4 only)

TNCL

Run 1	R	19.1	30.7	74.7	30.8	130.2	31.2	183.0	31.6	236.3	32.8
	L	47.0	25.0	102.6	23.6	156.4	25.5	209.9	26.3	262.6	26.0
Run 2	R	21.0	32.4	80.0	30.8	140.6	30.3	196.5	30.0	252.9	30.9
	L	50.5	26.6	111.6	24.4	168.4	26.0	225.4	25.2	-	-
Run 3	R	19.3	31.8	74.7	30.9	128.2	31.4	182.6	31.6	235.9	32.4
	L	46.3	25.2	101.0	25.0	155.9	24.6	209.8	26.1	261.8	25.5
Run 4	R	19.8	30.8	77.0	30.9	134.8	31.6	192.2	31.8	247.3	32.2
	L	48.8	24.7	106.0	23.8	164.3	24.9	220.0	25.0	274.6	23.2
MEAN	R	19.8	31.4	76.6	30.8	133.4	31.1	188.6	31.2	243.1	32.1
	L	48.1	25.4	105.3	24.2	161.2	25.2	216.3	25.6	266.3	24.9

TABLE (100.d)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.1

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
BNDR		D	W	D	W	D	W	D	W	D	W
Run 1	R	20.8	31.8	77.2	31.1	134.4	32.0	189.0	29.3	243.1	31.6
	L	50.7	25.2	107.1	24.7	162.1	22.5	215.3	24.1	271.3	24.7
Run 2	R	21.1	31.3	77.9	29.6	134.1	28.9	189.0	30.0	243.5	28.9
	L	49.8	25.2	105.7	24.0	161.6	24.6	215.7	25.8	270.2	23.0
Run 3	R	21.0	30.3	76.6	30.6	132.6	30.8	186.7	28.3	239.5	30.9
	L	49.0	23.9	104.5	23.5	159.1	23.5	212.7	24.9	266.4	24.5
Run 4	R	21.0	30.2	77.5	30.3	134.0	30.5	188.7	28.6	243.3	31.8
	L	49.5	23.5	106.1	23.2	161.8	23.5	216.1	24.5	270.7	24.9
MEAN	R	21.0	30.9	77.3	30.4	133.7	30.5	188.3	29.0	242.3	30.8
	L	48.7	24.4	105.9	23.8	161.1	23.5	214.9	24.8	269.6	24.8

BNDL

Run 1	R	17.5	30.5	72.7	29.0	126.9	30.2	181.9	33.6	235.2	31.0
	L	45.2	23.4	100.1	22.1	154.4	25.9	209.0	26.7	261.4	25.3
Run 2	R	23.1	31.2	78.5	30.7	132.5	31.6	184.5	30.5	241.7	32.7
	L	51.2	24.2	104.6	23.5	158.1	24.9	213.2	25.4	267.5	26.3
Run 3	R	21.0	31.3	75.1	31.2	130.8	32.0	184.3	32.2	235.5	29.2
	L	48.3	24.5	102.7	24.6	157.1	27.3	209.9	24.1	260.7	25.4
Run 4	R	22.2	30.4	79.2	30.1	135.7	30.5	194.9	32.0	250.7	31.0
	L	51.7	23.2	107.2	22.8	165.6	26.2	223.4	25.1	–	–
MEAN	R	20.9	30.8	76.4	30.2	131.5	31.1	186.4	32.1	240.7	31.0
	L	49.1	23.8	103.6	23.2	158.8	26.0	213.9	25.3	263.2	25.6

BNCR

Run 1	R	16.3	30.8	72.2	27.3	126.7	31.6	180.3	31.1	234.7	31.3
	L	44.2	22.4	100.3	22.3	152.8	25.3	207.2	25.5	259.9	26.1
Run 2	R	21.4	31.0	81.8	30.2	141.2	31.3	198.5	31.8	257.1	32.5
	L	52.3	22.3	111.6	23.7	169.7	25.5	228.1	24.7	–	–
Run 3	R	18.6	31.7	72.6	28.8	127.0	30.4	182.5	31.0	236.8	30.7
	L	46.2	22.7	100.1	22.7	155.0	24.7	209.9	25.2	263.8	24.5
Run 4	R	21.3	30.8	77.4	28.5	132.6	30.4	188.6	32.3	245.5	31.4
	L	48.5	22.6	105.3	22.6	160.7	26.4	217.3	24.5	274.1	24.5
MEAN	R	19.4	31.1	76.0	28.7	131.9	30.9	187.5	31.5	243.5	31.5
	L	47.8	22.5	104.3	22.8	159.5	25.5	215.6	25.0	265.9	25.0

TABLE (100.e)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.1

TRIAL	BNCL	Step 1 D	Step 1 W	Step 2 D	Step 2 W	Step 3 D	Step 3 W	Step 4 D	Step 4 W	Step 5 D	Step 5 W
Run 1	R	22.4	30.0	84.7	28.8	143.6	29.1	201.2	30.3	259.1	30.9
	L	54.1	26.0	114.6	20.7	172.6	23.9	230.4	25.4	-	-
Run 2	R	19.9	29.4	74.5	29.5	129.0	30.2	184.6	30.2	241.5	29.3
	L	47.8	23.2	102.9	21.9	155.6	25.5	212.7	25.1	267.6	24.1
Run 3	R	20.4	30.4	75.5	29.9	129.4	30.2	184.1	31.0	238.1	30.9
	L	47.5	23.8	103.8	22.4	156.9	24.1	211.7	24.2	263.3	23.3
Run 4	R	20.0	30.9	73.7	31.7	128.6	31.5	184.0	32.0	236.4	31.6
	L	47.1	23.0	100.5	24.7	156.1	25.0	210.8	24.1	262.8	24.6
MEAN	R	20.6	30.1	77.1	29.9	132.6	30.2	188.5	30.9	243.8	30.7
	L	49.1	24.7	105.4	22.4	160.3	24.6	216.4	24.7	264.6	24.0

TABLE (100.f) MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES: INDIVIDUAL RUNS. (M.1)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.2

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TWDR		D	W	D	W	D	W	D	W	D	W
Run 1	R	61.0	28.2	127.1	24.3	191.9	17.6	252.5	23.2	-	-
	L	29.2	25.3	95.0	24.2	160.2	15.8	223.7	14.0	-	-
Run 2	R	61.5	30.8	129.1	29.7	192.9	17.3	253.3	22.5	-	-
	L	29.6	25.8	97.1	25.4	161.8	20.7	224.5	12.0	-	-
Run 3	R	62.4	29.7	129.9	30.3	194.2	18.7	260.1	20.9	-	-
	L	30.3	24.8	97.0	25.1	162.5	19.9	227.8	13.3	-	-
Run 4	R	62.7	29.1	129.8	28.2	194.L	18.4	257.9	21.6	-	-
	L	30.1	24.5	96.3	26.0	162.3	20.6	227.0	13.7	-	-
MEAN	R	61.9	29.4	129.0	28.1	193.2	18.0	255.9	21.8	-	-
	L	30.0	25.1	96.3	25.2	161.7	19.2	225.8	13.2	-	-

TWDL

Run 1	R	59.7	29.9	125.3	31.5	189.8	43.8	252.9	30.4	-	-
	L	28.7	25.2	94.0	25.9	158.5	35.5	221.8	37.6	-	-
Run 2	R	57.4	30.4	123.7	32.0	190.4	38.9	255.4	33.5	-	-
	L	26.2	25.3	91.7	25.2	157.1	33.0	223.0	36.8	-	-
Run 3	R	59.4	30.9	129.3	31.3	197.9	41.5	266.3	31.6	-	-
	L	26.7	26.2	95.6	26.4	166.0	31.5	233.3	33.5	-	-
Run 4	R	60.2	29.7	128.0	29.8	195.5	41.3	262.6	35.3	-	-
	L	29.5	25.4	95.7	24.7	163.1	31.1	230.1	35.8	-	-
MEAN	R	59.2	30.2	126.5	31.1	193.4	41.2	259.3	32.7	-	-
	L	27.8	25.5	94.2	25.5	161.1	32.8	227.0	35.9	-	-

TWCR

Run 1	R	47.9	22.1	100.5	20.4	160.2	23.7	216.7	26.7	270.2	28.8
	L	19.3	23.2	74.1	9.9	131.3	19.6	189.6	21.4	247.5	24.5
Run 2	R	53.6	23.0	112.1	20.6	175.2	27.8	240.9	29.2	-	-
	L	25.6	23.7	82.3	12.7	144.8	20.5	208.4	26.8	272.4	24.9
Run 3	R	52.7	23.0	109.2	16.9	170.7	25.0	232.5	29.3	-	-
	L	24.2	25.1	79.9	10.5	141.2	19.4	202.4	25.1	262.7	27.6
Run 4	R	54.6	23.3	116.2	18.3	179.7	20.9	241.3	25.4	-	-
	L	25.7	24.4	85.8	13.5	149.5	14.9	212.8	21.5	-	-
MEAN	R	55.2	22.9	109.5	19.0	171.4	24.3	232.8	27.6	-	-
	L	23.7	25.1	80.5	11.6	141.7	18.6	203.3	23.7	260.8	25.7

TABLE (101.a) MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES: INDIVIDUAL RUNS. (M.2)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.2

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TWCL		D	W	D	W	D	W	D	W	D	W
Run 1	R	46.8	36.0	109.6	39.0	170.5	32.9	233.2	31.0	-	-
	L	25.7	19.6	78.0	39.8	140.8	30.5	202.8	29.8	263.8	27.0
Run 2	R	54.7	34.0	118.8	42.1	184.7	37.9	251.7	35.1	-	-
	L	25.9	26.2	85.8	39.0	152.4	38.7	218.3	33.2	-	-
Run 3	R	54.4	37.1	119.0	37.8	183.3	35.3	249.4	32.3	-	-
	L	26.5	26.3	86.8	37.6	151.9	31.7	216.6	29.2	-	-
Run 4	R	58.0	36.2	126.1	36.5	193.3	29.8	259.0	31.3	-	-
	L	29.5	27.2	91.9	38.1	161.0	28.8	227.6	26.8	-	-
MEAN	R	53.4	35.8	118.3	38.8	182.9	33.9	248.3	32.4	-	-
	L	26.9	24.8	85.6	38.6	151.5	32.4	216.3	28.7	-	-

BWDR

Run 1	R	61.6	29.9	126.2	30.6	189.0	19.9	248.4	25.7	-	-
	L	31.5	26.4	96.0	26.7	158.9	21.8	220.4	12.9	-	-
Run 2	R	61.4	28.9	128.5	25.7	192.2	19.3	255.2	23.5	-	-
	L	28.9	25.5	95.4	23.4	161.0	17.9	224.7	16.9	-	-
Run 3	R	62.0	29.3	127.1	24.4	191.3	21.5	251.7	26.2	-	-
	L	29.6	25.8	95.0	2o.8	161.1	20.3	223.0	17.6	-	-
Run 4	R	58.8	27.8	128.5	29.7	193.2	20.3	255.2	25.9	-	-
	L	26.1	24.5	94.4	24.1	161.9	19.6	225.9	14.5	-	-
MEAN	R	60.9	29.0	127.6	28.8	191.4	20.2	252.6	25.3	-	-
	L	29.0	25.5	95.2	23.7	160.7	19.9	223.5	15.5	-	-

BWDL

Run 1	R	59.5	29.5	123.6	29.8	185.2	38.3	249.0	35.0	-	-
	L	29.5	26.0	92.3	24.6	156.1	28.5	217.8	36.8	-	-
Run 2	R	63.1	28.7	128.7	30.0	193.0	39.9	256.6	35.5	-	-
	L	31.2	26.0	96.8	23.6	162.8	30.9	225.3	36.1	-	-
Run 3	R	58.3	31.9	125.1	30.8	188.7	38.3	255.7	36.3	-	-
	L	28.0	25.3	93.0	26.6	159.2	23.9	222.6	36.5	-	-
Run 4	R	63.1	30.5	132.0	32.9	197.5	39.5	263.9	38.4	-	-
	L	30.4	25.6	98.7	29.1	166.4	31.0	230.6	37.3	-	-
MEAN	R	61.0	30.1	127.3	30.9	191.1	39.0	256.3	36.3	-	-
	L	29.8	25.7	95.2	25.8	161.1	28.6	224.1	36.7	-	-

TABLE (101.b)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.2

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
BWCR		D	W	D	W	D	W	D	W	D	W
Run 1	R	54.9	20.3	116.8	18.4	178.2	24.8	239.2	28.2	-	-
	L	25.5	23.6	86.2	12.4	148.5	16.7	209.3	24.1	267.9	24.3
Run 2	R	55.7	21.9	114.7	21.5	177.6	27.2	240.2	28.6	-	-
	L	26.0	21.5	84.3	13.5	148.0	20.8	210.0	24.1	270.5	24.5
Run 3	R	54.2	20.4	117.2	19.5	181.8	24.0	246.1	30.1	-	-
	L	24.8	22.5	86.4	13.9	150.5	19.4	214.4	23.9	-	-
Run 4	R	56.3	21.2	122.3	21.6	190.6	25.8	257.4	26.7	-	-
	L	24.5	24.1	90.7	13.4	158.0	20.3	225.1	24.2	-	-
MEAN	R	55.3	20.9	117.7	20.2	182.0	25.4	245.7	28.3	-	-
	L	25.2	22.9	86.9	13.3	151.2	19.3	214.7	24.0	-	-

BWCL

Run 1	R	55.1	37.9	119.0	39.1	181.9	33.8	243.8	31.2	-	-
	L	26.8	25.9	87.6	37.3	151.3	32.2	214.2	29.2	272.3	24.9
Run 2	R	65.0	30.7	133.2	31.3	196.6	38.0	260.1	36.5	-	-
	L	33.2	24.5	100.5	25.4	166.8	27.2	228.4	35.3	-	-
Run 3	R	55.1	37.2	120.9	37.8	185.8	33.8	252.0	30.4	-	-
	L	26.0	26.1	88.1	35.8	154.3	32.1	218.9	28.8	-	-
Run 4	R	59.6	37.7	127.9	35.4	195.4	31.8	264.5	29.5	-	-
	L	27.8	27.5	94.1	35.5	161.7	30.5	230.4	27.2	-	-
MEAN	R	58.4	35.9	125.2	35.9	189.9	34.3	255.1	31.9	-	-
	L	28.4	26.0	92.6	33.5	158.5	30.5	222.9	30.1	-	-

TNDR

Run 1	R	58.3	29.3	124.2	28.6	188.8	27.3	253.3	30.3	-	-
	L	27.0	25.3	92.4	22.9	157.2	23.1	221.3	25.1	-	-
Run 2	R	63.1	27.7	132.5	29.5	197.8	29.5	265.9	29.6	-	-
	L	31.0	26.1	99.5	24.3	166.7	24.7	233.0	26.9	-	-
Run 3	R	61.7	30.3	129.4	30.0	197.3	28.7	264.3	30.9	-	-
	L	29.0	26.4	97.1	25.2	164.7	24.9	233.4	25.8	-	-
Run 4	R	62.5	29.9	131.9	29.7	199.5	28.3	267.9	30.0	-	-
	L	30.3	25.5	98.3	26.6	166.5	24.9	234.9	25.8	-	-
MEAN	R	61.4	29.3	129.5	29.5	195.8	28.4	262.8	30.2	-	-
	L	29.3	25.8	96.8	24.8	163.8	24.4	230.6	25.9	-	-

TABLE (101 .c)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.2

TRIAL / TNDL		Step 1 D	Step 1 W	Step 2 D	Step 2 W	Step 3 D	Step 3 W	Step 4 D	Step 4 W	Step 5 D	Step 5 W
Run 1	R	63.7	31.4	134.2	30.7	200.8	29.8	270.1	28.9	-	-
	L	31.3	27.3	99.9	29.5	168.4	27.6	236.6	27.7	-	-
Run 2	R	61.5	28.3	130.3	27.9	197.8	28.2	264.3	29.3	-	-
	L	29.0	24.5	95.5	24.0	165.2	24.9	232.2	25.0	-	-
Run 3	R	62.1	28.3	131.7	29.2	201.6	29.4	270.4	29.4	-	-
	L	28.0	25.4	98.8	23.0	166.8	25.4	236.2	25.5	-	-
Run 4	R	62.7	29.5	130.5	29.3	197.1	30.3	264.4	31.5	-	-
	L	30.1	26.3	97.9	23.9	164.9	26.1	231.2	27.6	-	-
MEAN	R	62.5	29.4	131.6	29.2	199.3	29.4	267.3	29.8	-	-
	L	29.6	25.9	98.0	25.1	166.3	26.0	234.0	26.5	-	-

TNCR

Run 1	R	58.6	29.2	123.0	28.6	186.1	28.8	250.6	29.2	-	-
	L	29.1	22.8	91.6	24.1	154.9	25.1	219.0	25.2	-	-
Run 2	R	59.5	28.5	126.4	30.7	191.8	29.4	257.7	30.8	-	-
	L	27.3	24.0	94.8	25.2	160.3	25.6	225.3	27.8	-	-
Run 3	R	59.4	28.7	127.7	29.1	194.4	28.0	260.3	28.8	-	-
	L	27.1	25.0	94.0	24.9	162.1	24.3	228.5	24.6	-	-
Run 4	R	60.8	28.7	126.2	28.8	193.5	28.8	258.0	30.1	-	-
	L	30.0	24.0	93.3	24.0	160.1	24.4	226.9	25.5	-	-
MEAN	R	59.6	28.8	125.8	29.3	191.3	28.7	256.6	29.7	-	-
	L	28.4	23.9	93.4	24.5	159.3	24.8	224.9	25.8	-	-

TNCL

Run 1	R	58.5	30.3	125.2	30.5	188.9	29.2	253.5	29.7	-	-
	L	22.6	25.6	92.4	26.4	154.1	28.9	222.1	26.3	-	-
Run 2	R	57.1	30.8	126.6	30.7	193.3	29.5	260.6	30.3	-	-
	L	26.5	23.9	92.8	27.7	159.9	25.3	228.0	25.8	-	-
Run 3	R	55.2	30.3	120.2	30.7	187.7	30.5	253.9	30.9	-	-
	L	25.3	25,4	89.2	25.1	155.2	26.1	220.4	26.2	-	-
Run 4	R	63.4	30.2	133.7	30.5	200.9	29.4	268.2	30.3	-	-
	L	31.3	25.8	99.3	26.0	168.6	25.1	236.8	26.9	-	-
MEAN	R	58.5	30.4	126.4	30.6	192.7	29.6	259.0	30.3	-	-
	L	26.4	25.2	93.4	26.3	159.5	26.3	226.8	26.3	-	-

TABLE (101,a)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.2

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
BNDR		D	W	D	W	D	W	D	W	D	W
Run 1	R	55.9	30.0	120.6	28.7	182.9	30.8	245.9	30.2	–	–
	L	25.7	24.4	89.0	24.9	153.0	24.5	213.8	26.3	–	–
Run 2	R	62.8	30.8	128.4	30.4	193.6	29.4	259.6	29.9	–	–
	L	30.7	27.3	96.4	25.1	161.9	24.1	226.2	25.8	–	–
Run 3	R	57.5	28.6	124.2	30.0	191.0	29.5	256.8	30.4	–	–
	L	26.8	24.7	92.5	24.6	158.9	25.9	225.8	25.9	–	–
Run 4	R	61.3	31.2	128.8	30.7	195.5	29.2	264.0	29.7	–	–
	L	29.6	26.7	95.9	28.0	163.1	26.2	230.7	26.0	–	–
MEAN	R	59.3	30.0	125.5	30.0	190.0	29.7	256.6	30.0	–	–
	L	28.2	25.8	93.4	25.6	159.2	24.7	224.1	26.0	–	–

BNDL

Run 1	R	62.2	29.1	131.0	32.4	197.2	31.0	263.1	31.3	–	–
	L	31.0	25.3	98.7	28.2	165.0	26.7	231.6	27.4	–	–
Run 2	R	61.4	28.9	130.3	31.5	198.3	30.1	265.1	31.2	–	–
	L	29.0	24.9	97.3	24.5	163.8	28.8	232.6	27.0	–	–
Run 3	R	59.6	28.2	126.4	29.5	190.9	29.8	254.7	30.9	–	–
	L	27.3	25.5	93.8	25.3	160.1	25.4	225.0	26.2	–	–
Run 4	R	63.7	29.3	136.1	30.8	205.0	30.7	274.0	27.4	–	–
	L	28.3	24.9	101.2	26.4	172.7	25.9	241.3	23.6	–	–
MEAN	R	61.7	28.9	130.9	31.1	197.8	30.4	264.2	30.2	–	–
	L	28.9	25.1	97.7	26.1	165.4	26.7	232.6	26.0	–	–

BNCR

Run 1	R	58.6	29.9	125.5	31.5	191.5	32.3	256.6	31.7	–	–
	L	29.1	26.1	94.8	25.4	159.3	27.9	224.6	28.0	–	–
Run 2	R	60.4	29.0	128.1	29.5	195.1	28.5	260.0	30.1	–	–
	L	29.4	24.9	95.0	25.4	162.5	26.8	228.8	26.6	–	–
Run 3	R	64.4	28.2	133.9	29.6	202.3	29.2	269.9	30.8	–	–
	L	29.4	24.5	100.3	24.2	168.9	25.1	238.5	26.4	–	–
Run 4	R	59.7	28.8	130.2	31.2	200.4	30.0	268.1	30.7	–	–
	L	26.2	24.1	96.5	25.4	166.0	27.5	236.6	25.8	–	–
MEAN	R	60.8	29.0	129.4	30.5	197.3	30.0	263.6	30.8	–	–
	L	28.5	24.9	96.6	25.1	164.2	26.8	232.1	26.7	–	–

TABLE (101 .e)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.2

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
BNCL		D	W	D	W	D	W	D	W	D	W
Run 1	R	59.4	30.6	125.2	30.1	192.3	29.6	256.5	31.4	–	–
	L	29.0	25.7	93.6	26.6	159.5	27.3	225.1	26.3	–	–
Run 2	R	60.7	30.5	128.3	31.9	196.1	29.1	263.5	28.8	–	–
	L	29.6	25.9	96.4	25.6	163.2	26.7	231.0	25.2	–	–
Run 3	R	66.2	31.0	134.1	28.8	203.3	28.5	270.6	29.6	–	–
	L	32.8	27.2	100.7	25.2	169.1	24.7	237.8	24.6	–	–
Run 4	R	62.3	31.0	129.1	27.2	197.3	26.9	264.8	27.7	–	–
	L	30.3	24.8	96.4	24.1	164.0	22.6	232.0	24.3	–	–
MEAN	R	62.1	30.8	129.2	29.5	197.2	28.5	263.8	29.4	–	–
	L	30.4	25.9	96.8	25.3	163.9	25.3	231.5	25.1	–	–

TABLE (101.f) MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES: INDIVIDUAL RUNS. (M.2)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.3

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TWDR		D	W	D	W	D	W	D	W	D	W
Run 1	R	53.3	27.7	121.0	28.1	183.4	28.5	244.2	22.9	-	-
	L	22.7	23.3	88.2	23.3	152.6	24.2	213.0	10.2	270.1	18.5
Run 2	R	55.3	27.5	124.0	27.0	190.4	19.2	253.2	20.3	-	-
	L	23.1	23.4	89.5	23.2	157.7	20.8	221.6	10.3	-	-
Run 3	R	58.6	27.2	125.5	27.6	188.1	14.4	250.8	23.5	-	-
	L	25.6	22.8	92.3	22.1	156.5	20.3	219.1	10.6	-	-
Run 4	R	55.8	27.6	119.0	28.9	182.2	19.7	241.5	24.0	-	-
	L	23.8	24.4	88.0	23.4	150.8	26.6	212.7	10.4	-	-
MEAN	R	55.7	27.5	122.4	27.9	186.0	20.5	247.4	22.7	-	-
	L	23.8	23.4	89.5	23.0	154.4	23.0	216.6	10.3	-	-

TWDL

Run 1	R	55.8	29.7	121.5	29.0	183.8	37.9	244.5	39.9	-	-
	L	23.4	23.8	88.1	23.3	153.7	22.7	213.8	42.3	271.0	28.4
Run 2	R	56.8	29.6	126.0	27.7	187.8	39.6	253.4	35.0	-	-
	L	23.5	25.3	90.2	24.2	159.4	23.1	220.9	41.2	-	-
Run 3	R	58.4	29.5	129.8	28.8	191.6	42.0	253.5	33.0	-	-
	L	24.6	22.7	93.9	25.4	162.8	23.0	222.5	41.3	-	-
Run 4	R	49.0	28.5	114.2	28.1	174.7	33.8	233.2	40.0	-	-
	L	17.6	24.4	80.5	24.4	147.0	22.6	204.7	40.0	260.6	26.5
MEAN	R	55.0	29.3	122.9	28.4	184.4	38.3	246.2	37.0	-	-
	L	22.3	24.0	88.1	24.3	155.7	22.8	215.4	41.2	-	-

TWCR

Run 1	R	50.5	26.8	107.5	23.5	172.8	28.5	237.3	26.0	-	-
	L	22.2	23.6	79.1	10.8	139.9	22.3	205.6	22.2	267.9	23.7
Run 2	R	52.6	24.8	112.0	27.2	181.1	27.1	247.8	26.7	-	-
	L	24.3	22.8	83.1	10.3	146.2	21.3	212.8	22.8	-	-
Run 3	R	51.3	24.0	112.6	23.2	179.3	29.9	245.1	27.7	-	-
	L	21.3	23.8	81.3	11.7	144.6	23.9	210.4	24.9	-	-
Run 4	R	52.0	19.9	112.9	24.5	179.8	30.6	248.1	30.8	-	-
	L	23.2	21.8	82.2	9.6	147.1	24.4	214.0	26.9	-	-
MEAN	R	51.6	23.9	111.2	24.6	178.2	29.0	244.6	27.8	-	-
	L	22.7	23.0	81.4	10.6	144.4	23.0	210.7	24.2	-	-

TABLE (102.a) MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES: INDIVIDUAL RUNS. (M.3)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.3

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TWCL		D	W	D	W	D	W	D	W	D	W
Run 1	R	44.6	36.8	104.9	36.6	167.6	29.6	229.0	30.3	-	-
	L	20.6	24.8	75.2	39.3	135.8	27.5	199.8	24.6	260.0	25.4
Run 2	R	51.3	36.5	111.7	36.9	175.8	28.8	239.7	27.8	-	-
	L	25.2	25.1	81.1	41.6	143.8	28.5	208.2	25.1	269.5	24.3
Run 3	R	50.6	37.9	114.1	33.3	179.3	27.4	243.4	27.0	-	-
	L	22.0	24.5	82.5	38.6	145.6	25.8	210.0	22.9	275.2	24.5
Run 4	R	49.6	36.3	113.8	37.5	179.3	29.4	245.5	26.3	-	-
	L	21.4	25.5	81.2	39.4	145.0	27.8	211.8	22.7	-	-
MEAN	R	40.0	36.9	111.1	36.1	175.5	28.8	239.4	27.8	-	-
	L	22.3	24.9	80.0	39.7	142.6	27.4	207.5	23.8	-	-

BWDR

Run 1	R	52.2	25.3	119.5	29.4	182.5	25.1	237.5	24.0	-	-
	L	19.9	21.0	85.7	22.3	151.4	23.1	209.7	11.4	267.8	21.9
Run 2	R	58.0	30.5	125.6	27.3	191.3		256.7	24.2	-	-
	L	24.2	23.6	91.8	24.0	158.5	21.3	224.3	14.3	-	-
Run 3	R	57.6	27.0	123.9	27.8	186.5	22.9	249.1	23.3	-	-
	L	24.0	23.9	90.2	23.5	155.4	24.1	217.9	12.5	-	-
Run 4	R	60.4	27.9	125.8	28.5	191.8	17.3	256.3	22.0	-	-
	L	27.1	23.1	94.3	23.9	158.1	22.0	223.8	13.1	-	-
MEAN	R	57.0	27.7	123.7	28.2	188.0	19.9	249.9	23.3	-	-
	L	23.8	22.9	90.5	23.4	155.8	22.6	218.9	12.8	-	-

BWDL

Run 1	R	53.9	29.3	112.5	25.9	175.8	30.8	233.5	39.4	-	-
	L	23.5	24.6	85.8	24.1	149.6	20.7	205.2	38.4	261.6	24.5
Run 2	R	54.4	29.8	123.0	27.8	185.2	38.9	246.9	33.6	-	-
	L	22.8	24.9	88.3	24.2	156.6	24.7	216.8	39.4	274.9	23.5
Run 3	R	57.7	30.1	124.0	26.3	185.3	36.8	246.2	35.2	-	-
	L	26.2	24.7	90.2	24.3	155.4	23.0	214.8	39.4	268.8	24.1
Run 4	R	53.2	27.7	118.8	25.6	180.6	40.8	243.6	34.3	-	-
	L	20.9	23.6	85.7	21.9	157.0	25.3	211.7	40.3	272.4	22.8
MEAN	R	54.8	29.2	119.6	26.4	181.7	36.8	242.5	35.6	-	-
	L	23.3	24.4	87.5	23.6	154.6	23.4	212.1	39.3	269.4	23.7

TABLE (102.b)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.3

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
BWCR		D	W	D	W	D	W	D	W	D	W
Run 1	R	52.1	21.5	108.8	29.2	175.3	26.9	238.5	27.9	-	-
	L	22.5	22.3	82.0	11.0	142.0	21.3	206.3	22.7	267.1	22.5
Run 2	R	50.3	22.3	112.1	26.2	178.5	26.5	252.5	30.0	-	-
	L	23.4	23.0	83.5	11.9	146.1	22.1	210.5	23.4	273.6	24.1
Run 3	R	50.9	20.4	109.0	27.9	174.8	27.3	242.4	25.4	-	-
	L	23.1	23.8	81.2	14.0	142.5	23.1	208.3	20.5	274.4	21.9
Run 4	R	51.5	18.8	109.8	24.5	175.3	24.9	241.4	25.5	-	-
	L	20.9	22.5	79.3	9.6	142.0	19.5	208.6	21.6	270.7	19.5
MEAN	R	51.2	20.7	109.9	26.9	175.9	26.4	243.7	27.2	-	-
	L	22.5	22.9	81.5	11.6	143.1	21.5	208.4	22.0	271.4	22.0

BWCL

Run 1	R	45.9	32.7	107.0	35.6	170.5	28.2	233.5	27.3	-	-
	L	18.5	23.4	76.5	36.8	137.5	25.7	202.5	22.3	-	-
Run 2	R	56.3	38.8	120.9	31.9	188.5	28.1	257.2	27.9	-	-
	L	27.0	26.9	89.3	37.9	153.8	24.4	220.5	21.9	-	-
Run 3	R	51.0	37.2	114.2	34.9	179.2	32.9	247.4	27.9	-	-
	L	23.9	22.9	83.0	38.9	145.9	25.9	213.5	23.7	-	-
Run 4	R	54.4	37.9	116.6	33.6	182.7	30.3	250.1	29.3	-	-
	L	26.2	23.8	85.0	38.4	148.8	28.6	215.6	26.3	-	-
MEAN	R	51.9	36.6	114.7	34.0	180.2	29.8	247.1	28.1	-	-
	L	23.9	24.2	83.4	38.0	146.5	26.1	213.0	23.5	-	-

TNDR

Run 1	R	51.7	27.9	117.7	27.5	184.4	25.0	249.3	24.6	-	-
	L	20.4	22.0	84.6	23.2	150.2	22.4	217.1	19.6	-	-
Run 2	R	59.1	30.1	128.7	27.4	198.2	26.9	264.7	26.7	-	-
	L	24.2	23.1	94.6	24.2	163.2	23.4	231.7	21.2	-	-
Run 3	R	58.4	24.9	125.5	25.4	193.5	27.2	258.9	29.9	-	-
	L	22.6	21.2	92.1	19.9	159.3	24.2	225.7	23.1	-	-
Run 4	R	55.6	31.0	124.9	27.1	193.2	24.3	259.9	25.3	-	-
	L	24.2	23.2	90.7	24.2	158.4	20.7	226.1	20.0	-	-
MEAN	R	56.2	28.5	124.2	26.9	192.3	25.8	258.2	26.6	-	-
	L	22.8	22.4	90.5	22.8	157.7	22.7	225.1	21.0	-	-

TABLE (102.c)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.3

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
TNDL		D	W	D	W	D	W	D	W	D	W
Run 1	R	52.4	29.2	118.6	28.3	183.5	29.4	248.3	32.1	-	-
	L	21.7	24.2	85.4	24.8	152.3	23.5	216.4	26.4	-	-
Run 2	R	53.4	26.9	119.0	30.2	185.4	30.8	254.0	30.9	-	-
	L	19.1	23.1	86.3	22.8	152.3	26.4	218.8	25.5	-	-
Run 3	R	55.6	28.8	125.7	28.4	195.7	28.5	265.4	23.5	-	-
	L	23.9	25.2	90.5	23.0	161.3	24.2	230.2	23.0	-	-
Run 4	R	57.2	29.6	122.7	27.3	190.0	28.3	255.9	29.4	-	-
	L	27.0	25.4	89.5	24.7	156.1	23.7	226.9	24.5	-	-
MEAN	R	54.7	28.6	121.5	28.5	188.6	29.2	255.9	29.0	-	-
	L	22.9	24.5	87.9	23.8	155.5	24.4	223.1	24.8	-	-

TNCR

Run 1	R	52.6	29.2	118.9	29.2	186.3	30.2	251.4	30.7	-	-
	L	22.7	24.4	85.8	24.4	152.9	26.0	219.5	27.0	-	-
Run 2	R	53.8	28.4	119.6	28.0	185.9	29.2	253.6	28.2	-	-
	L	22.3	23.0	87.0	23.7	153.5	23.6	221.3	24.2	-	-
Run 3	R	61.5	27.4	133.5	26.2	204.6	29.2	272.2	31.5	-	-
	L	28.5	23.4	97.9	21.7	168.5	22.3	239.1	27.8	-	-
Run 4	R	62.4	28.0	134.3	28.5	203.3	28.0	270.8	23.7	-	-
	L	26.7	21.9	97.8	23.7	169.6	23.3	231.6	21.1	-	-
MEAN	R	57.5	28.3	126.6	28.0	195.0	29.1	262.0	28.5	-	-
	L	25.0	23.2	92.1	23.3	161.1	23.8	227.9	25.0	-	-

TNCL

Run 1	R	52.3	30.5	120.9	31.0	187.4	27.5	251.5	24.9	-	-
	L	21.0	24.1	86.4	25.6	154.8	25.3	220.2	21.6	-	-
Run 2	R	53.6	30.6	123.0	27.5	191.8	28.9	257.3	27.1	-	-
	L	21.4	24.6	88.1	25.6	157.3	22.7	225.0	22.3	-	-
Run 3	R	59.2	30.8	128.7	28.5	198.3	26.9	263.5	26.2	-	-
	L	25.9	25.3	94.6	25.8	162.4	23.8	229.9	21.8	-	-
Run 4	R	61.8	28.8	128.0	28.0	194.0	28.5	260.0	27.9	-	-
	L	27.7	24.9	95.6	23.9	161.2	23.1	227.4	24.4	-	-
MEAN	R	56.7	30.2	125.1	28.8	192.8	27.9	258.1	26.5	-	-
	L	24.0	24.7	91.2	25.2	158.9	23.7	225.6	22.5	-	-

TABLE (102.d)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.3

TRIAL BNDR		Step 1 D	Step 1 W	Step 2 D	Step 2 W	Step 3 D	Step 3 W	Step 4 D	Step 4 W	Step 5 D	Step 5 W
Run 1	R	56.6	28.6	125.9	29.1	193.7	29.5	262.2	27.3	-	-
	L	24.7	23.9	89.9	25.1	159.6	26.9	228.4	24.3	-	-
Run 2	R	53.1	28.8	122.0	28.3	189.7	26.8	255.2	26.2	-	-
	L	21.3	21.8	88.3	23.0	155.0	22.1	224.1	21.4	-	-
Run 3	R	62.8	27.8	135.5	25.9	207.6	26.5			-	-
	L	27.0	23.4	98.0	20.9	170.9	22.1	244.3	21.6	-	-
Run 4	R	57.6	27.8	127.5	28.6	197.2	24.2	268.2	22.7	-	-
	L	24.8	22.0	92.6	24.8	163.7	22.5	233.0	19.9	-	-
MEAN	R	57.5	28.2	127.5	28.0	197.1	26.7	261.9	25.4	-	-
	L	24.4	22.7	92.2	23.4	162.3	23.4	232.4	21.8	-	-

BNDL

Run 1	R	55.6	29.4	121.5	28.0	188.2	29.5	251.5	27.9	-	-
	L	24.1	24.9	88.7	22.5	154.9	25.8	220.7	26.2	-	-
Run 2	R	54.7	28.8	125.7	30.1	195.3	29.6	264.9	26.9	-	-
	L	20.7	22.5	88.4	25.4	159.9	26.1	231.0	23.4	-	-
Run 3	R	61.2	29.8	126.4	31.7	191.3	32.2	254.7	27.5	-	-
	L	28.2	26.0	93.4	25.9	159.9	27.6	222.9	27.5	-	-
Run 4	R	60.1	29.3	129.9	30.8	198.3	30.7	264.6	26.9	-	-
	L	26.3	23.7	95.8	25.8	165.1	26.2	232.2	24.1	-	-
MEAN	R	57.9	29.3	125.9	30.1	193.2	30.5	258.9	27.3	-	-
	L	24.8	24.3	91.6	24.9	159.9	26.4	226.7	25.3	-	-

BNCR

Run 1	R	53.2	27.5	119.1	26.2	186.1	25.1	253.6	30.1	-	-
	L	22.6	22.7	86.0	21.7	152.2	20.8	221.1	23.4	-	-
Run 2	R	55.9	28.0	126.0	28.0	196.0	29.2	265.3	28.0	-	-
	L	23.0	23.8	90.0	23.2	160.6	23.7	231.3	24.5	-	-
Run 3	R	52.5	29.9	119.7	28.9	188.1	26.3	255.2	27.6	-	-
	L	22.2	23.3	86.1	24.4	152.4	22.2	220.1	21.0	-	-
Run 4	R	58.9	29.2	126.4	29.8	194.7	30.6	262.0	28.5	-	-
	L	26.0	23.5	91.5	23.9	158.3	25.0	227.4	24.3	-	-
MEAN	R	55.1	28.6	122.8	28.2	191.2	27.8	259.0	28.5	-	-
	L	23.4	23.3	88.4	23.3	155.9	22.9	225.0	23.3	-	-

TABLE (102.e)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

Subject No. M.3

TRIAL		Step 1		Step 2		Step 3		Step 4		Step 5	
BNCL		D	W	D	W	D	W	D	W	D	W
Run 1	R	54.6	31.4	120.0	27.0	187.5	26.7	251.5	27.3	–	–
	L	24.1	26.7	86.5	23.9	154.1	23.3	218.9	20.2	–	–
Run 2	R	50.0	31.4	115.2	29.6	180.6	29.4	243.9	31.3	–	–
	L	21.8	26.3	83.2	25.8	148.9	23.9	212.7	24.4	–	–
Run 3	R	57.9	31.4	124.3	29.5	191.0	29.1	255.0	25.9	–	–
	L	23.7	24.1	74.8	24.7	156.6	27.0	226.5	22.7	–	–
Run 4	R	58.7	30.2	128.3	29.0	198.6	28.3	266.8	24.8	–	–
	L	23.9	23.8	92.1	25.0	163.7	24.7	232.2	22.3	–	–
MEAN	R	53.3	31.1	122.0	28.8	189.4	28.4	254.3	27.3	–	–
	L	23.4	25.2	84.1	24.8	155.8	24.7	222.5	22.4	–	–

NOTE: HEEL AND TOE LOCATIONS OF INDIVIDUAL FOOTPRINTS IN TRIALS WITH OBSTACLES ARE NOT AVAILABLE.

TABLE (102.f) MEAN FOOTPRINT CENTRE-LINE LOCATIONS IN TRIALS WITH OBSTACLES: INDIVIDUAL RUNS. (M.3)

APPENDIX 2. EXPERIMENT (PART 2): TRIALS WITH OBSTACLES

INFORMATION	COLUMN	PUNCHED CARD CODING
SUBJECT IDENTIFICATION	1	Subject Number
	2	1 if Male 2 if Female
	3	1 if 5%tile 2 if 50%tile 3 if 95%tile
BLANK	4	
TRIAL IDENTIFICATION	5,6	Trials 1-64
	7	Runs 1-4
	8,9	Trials 1-16 within Runs 1-4
BLANK	10	
OBSTACLE IDENTIFICATION	11	1 if Top 2 if Bottom
	12	1 if Narrow 2 if Wide
	13	1 if Distant 2 if Close
	14	1 if Right hand: 2 if Left hand
BLANK	15	
FOOTPRINT IDENTIFICATION	16	1 if Right foot: 2 if Left foot
	17	1 if Heel 2 if Toe
BLANK	18	
DATA	19-22	First Step - Distance
	23-26	- Width
	27-31	Second Step - Distance
	32-35	- Width
	36-40	Third Step - Distance
	41-44	- Width
	45-49	Fourth Step - Distance
	50-53	- Width
	54-58	Fifth Step - Distance
	59-62	- Width
	63-67	Sixth Step - Distance
	68-71	- Width
	72-76	Seventh Step - Distance
	77-80	- Width

Trials with obstacles required 4-cards per Trial/Subject
= 4 x 64 x 6 = 1536 cards.

FIG.(129). DATA SHEET AND PUNCHED CARD CODING.

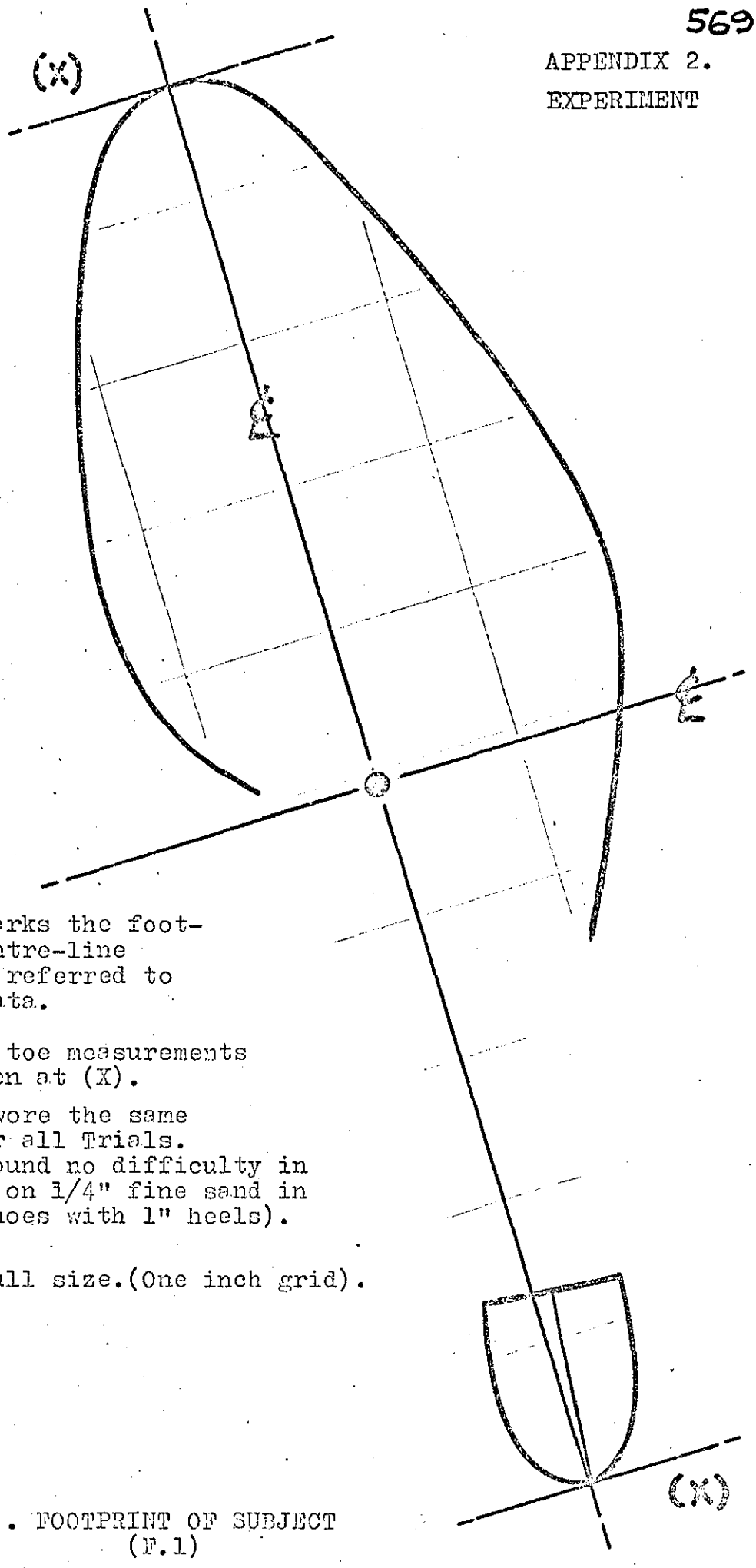
SUBJECT
NUMBER
1 M. 2 F.
1/5 2/50 3/95
TRIAL
1 - 9 -
10 - 64
RUN 1 - 4
TRIAL 1 - 16
TRIAL 1 - 16
OBSTACLE
1 Y. 2 B.V.
1 N. 2 C.
1 D. 2 L.
1 R. 2

SHEET NO. OF SHEETS.

		Col. 16	Col. 17	STEP 1 D	STEP 1 W	STEP 2 D	STEP 2 W	STEP 3 D	STEP 3 W	STEP 4 D	STEP 4 W	STEP 5 D	STEP 5 W	STEP 6 D	STEP 6 W	STEP 7 D	STEP 7 W
R	HEEL	1	1														
R	TOE	1	2														
L	HEEL	2	1														
L	TOE	2	2														
R	HEEL	1	1														
R	TOE	1	2														
L	HEEL	2	1														
L	TOE	2	2														
R	HEEL	1	1														
R	TOE	1	2														
L	HEEL	2	1														
L	TOE	2	2														
R	HEEL	1	1														
R	TOE	1	2														
L	HEEL	2	1														
L	TOE	2	2														

Card columns 1–80 numbered above and below the grid: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

APPENDIX 2.
EXPERIMENT



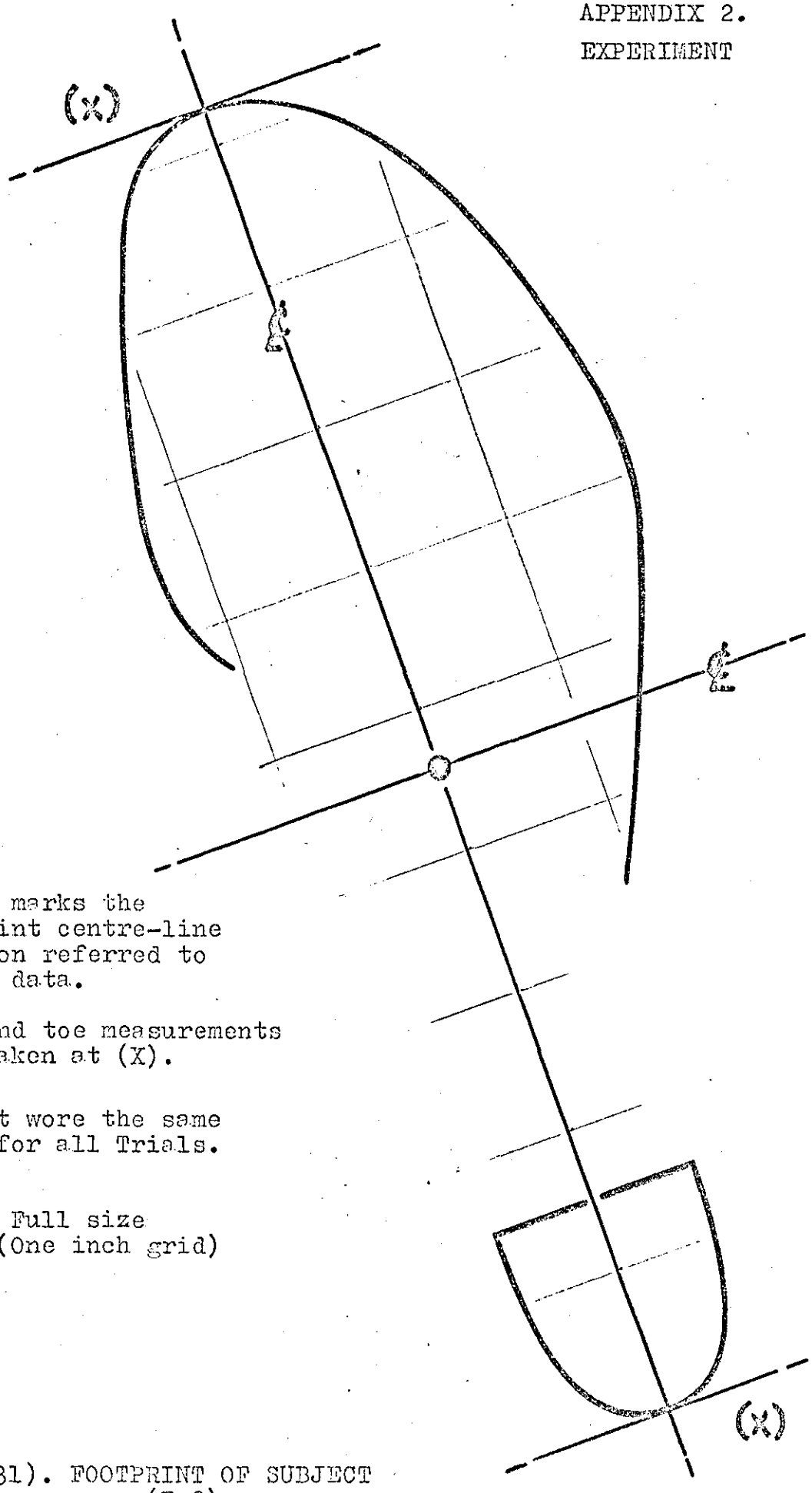
Circle marks the foot-print centre-line location referred to in the data.

Heel and toe measurements were taken at (X).

Subject wore the same shoes for all Trials. (The S. found no difficulty in walking on 1/4" fine sand in Court shoes with 1" heels).

Scale: Full size. (One inch grid).

FIG. (130). FOOTPRINT OF SUBJECT (F.1)



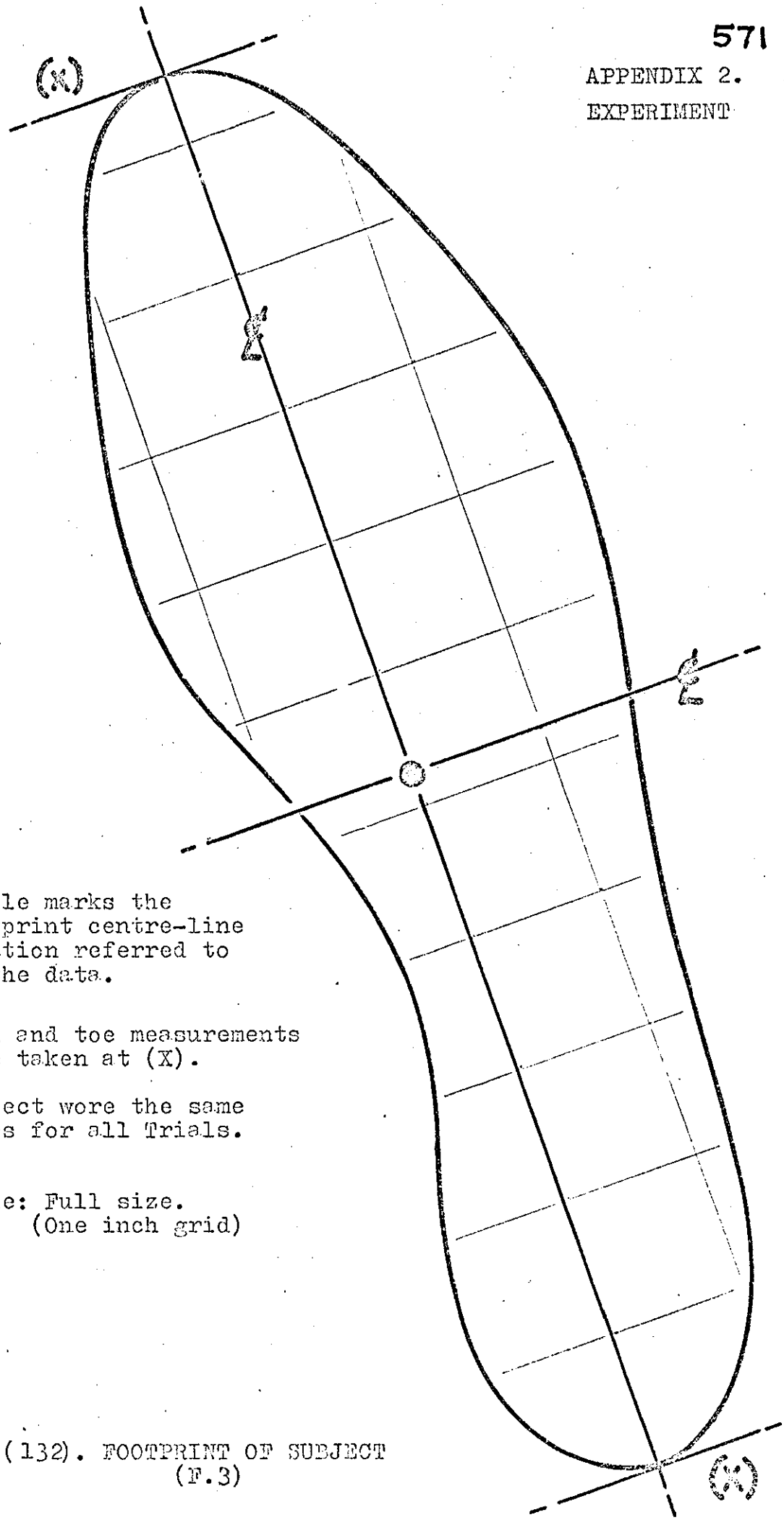
Circle marks the footprint centre-line location referred to in the data.

Heel and toe measurements were taken at (X).

Subject wore the same shoes for all Trials.

Scale: Full size
(One inch grid)

FIG.(131). FOOTPRINT OF SUBJECT (F.2)



Circle marks the footprint centre-line location referred to in the data.

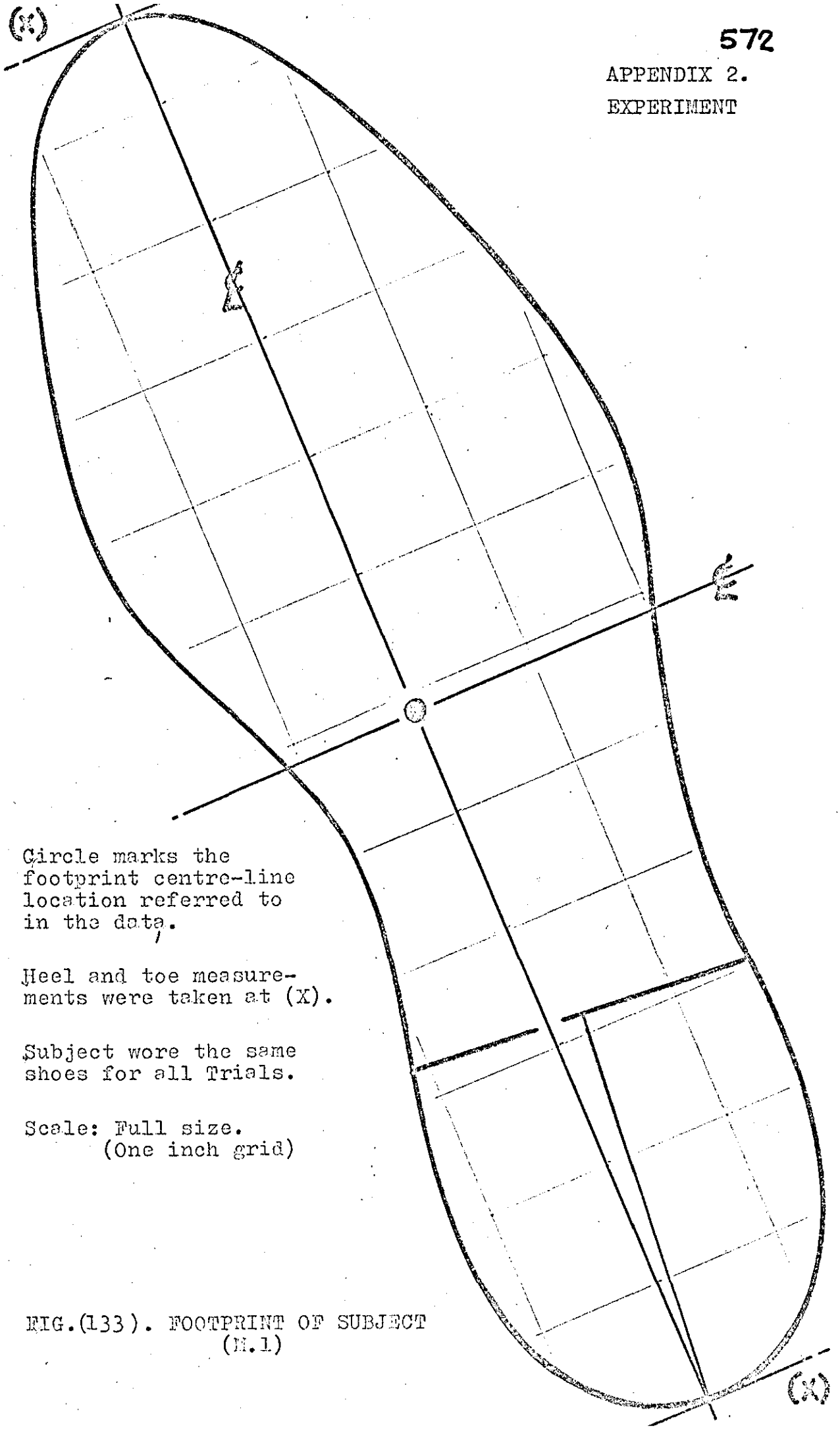
Heel and toe measurements were taken at (X).

Subject wore the same shoes for all Trials.

Scale: Full size.
(One inch grid)

FIG.(132). FOOTPRINT OF SUBJECT (F.3)

APPENDIX 2.
EXPERIMENT



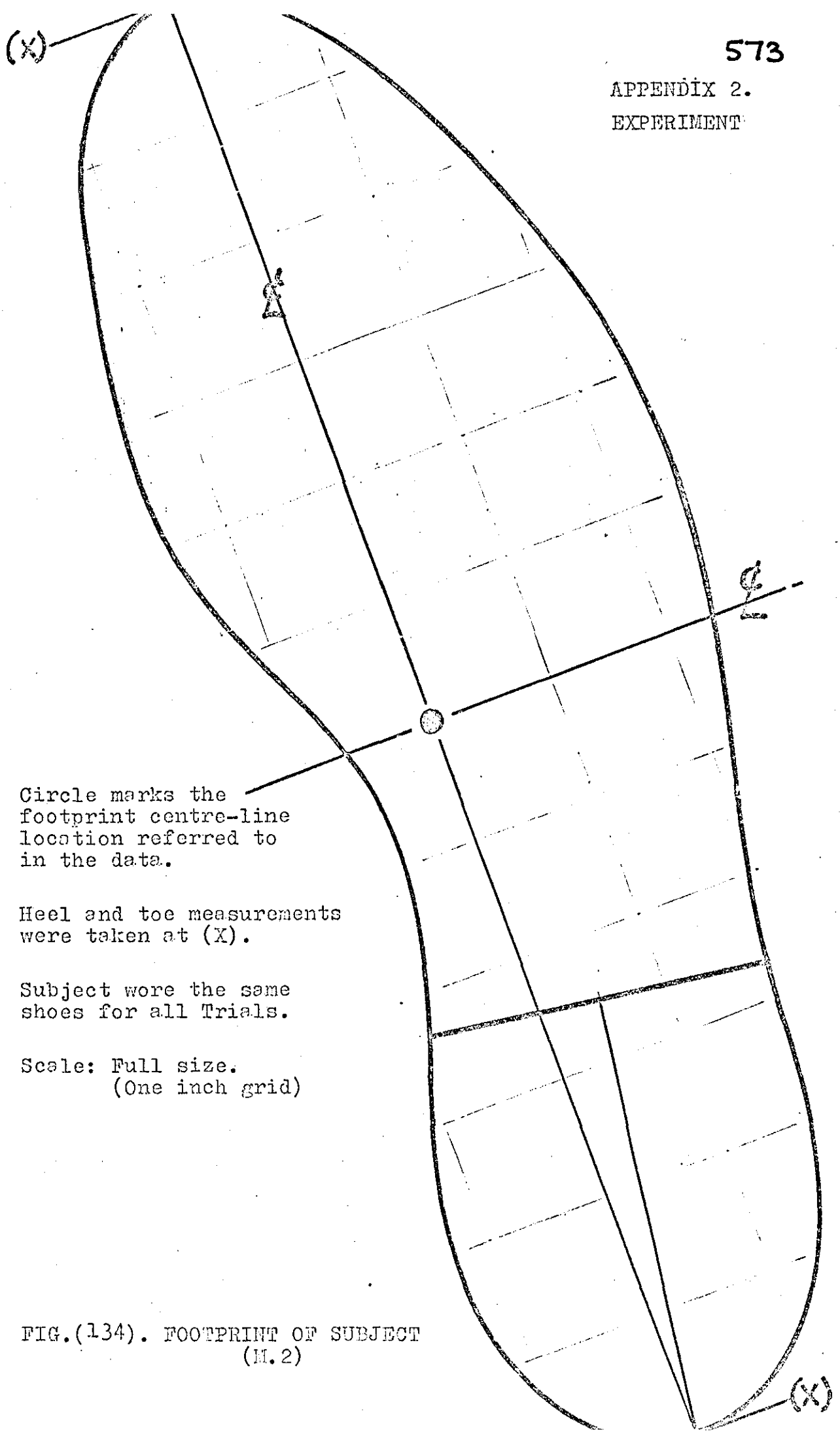
Circle marks the footprint centre-line location referred to in the data.

Heel and toe measurements were taken at (X).

Subject wore the same shoes for all Trials.

Scale: Full size.
(One inch grid)

FIG.(133). FOOTPRINT OF SUBJECT (M.1)



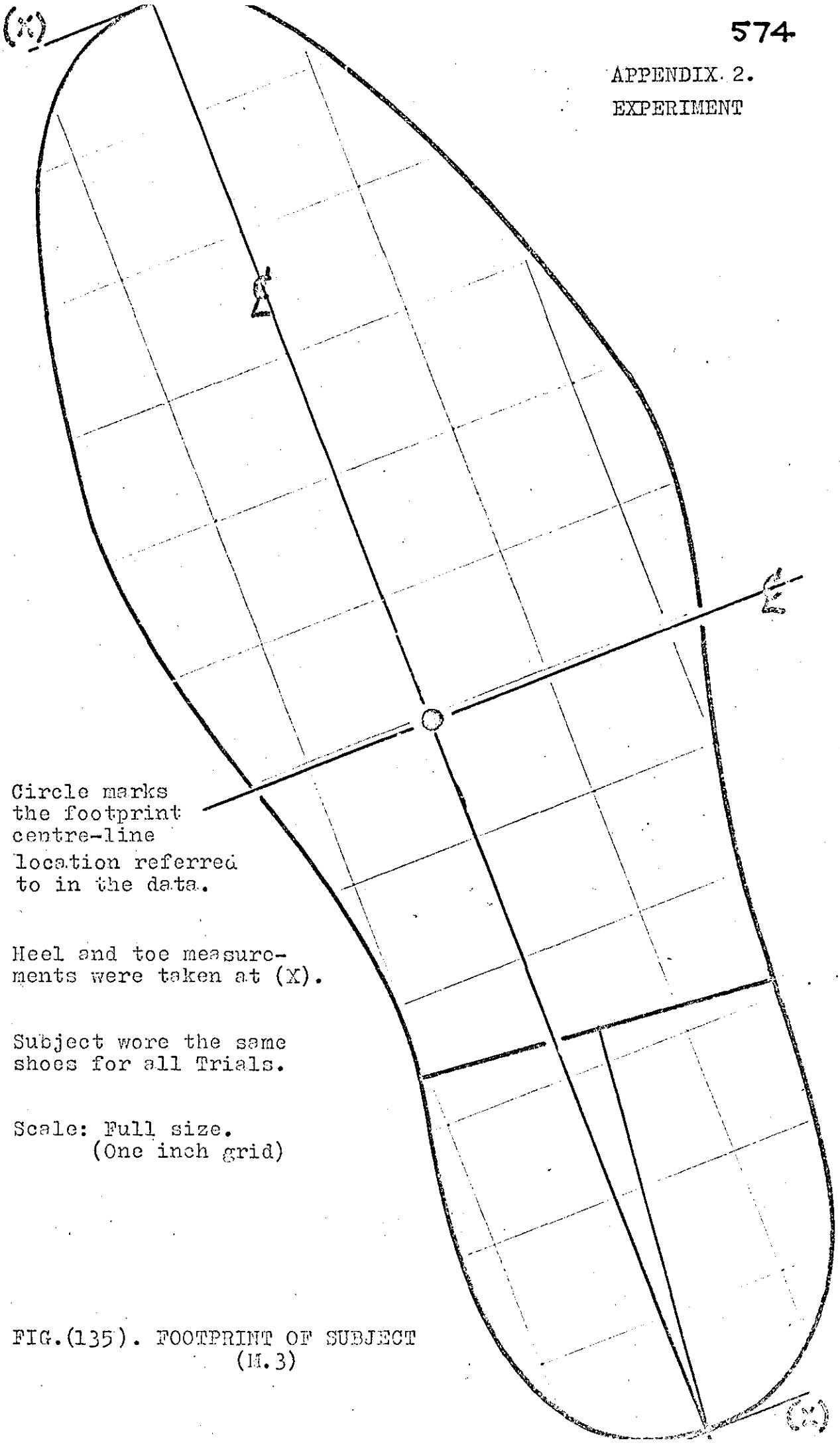
Circle marks the footprint centre-line location referred to in the data.

Heel and toe measurements were taken at (X).

Subject wore the same shoes for all Trials.

Scale: Full size.
(One inch grid)

FIG.(134). FOOTPRINT OF SUBJECT (M.2)



Circle marks the footprint centre-line location referred to in the data.

Heel and toe measurements were taken at (X).

Subject wore the same shoes for all Trials.

Scale: Full size.
(One inch grid)

FIG.(135). FOOTPRINT OF SUBJECT (M.3)