

SHEFFIELD UNIVERSITY



ATTITUDES TOWARDS DESIGNED LANDSCAPES IN TWO DESERT CITIES: MEDINA-
SAUDI ARABIA AND TUCSON-ARIZONA.

VOLUME II.

A DISSERTATION SUBMITTED TO THE FACULTY OF ARCHITECTURAL STUDIES
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

DEPARTMENT OF LANDSCAPE ARCHITECTURE.



BY
ASHRAF ALTURKI

SHEFFIELD, UNITED KINGDOM
February 2001



8

The Western definition of aesthetic and American past and present perception of desert.

Attitudes towards designed landscapes in two desert cities: Medina, Saudi Arabia and Tucson, Arizona.

8. The Western Definition of Aesthetic and American past and present perception of desert.

8.1. Historic Background of Definitions of 'Aesthetic.'

In Greek civilisation, beauty was sought in all fields of life to the extent it was given divinity as a God. Ancient Greek women worshipped Apollo 'God of beauty', not only to praise and admire his beauty, but also to gain beauty for themselves and their children so they can reveal it in all fields of life and for generations to come. Greek love of beauty was depicted in all domains of art. Socrates (470-399 BC.) and Plato (428-347 BC.) were among the ancient philosophers who idealised beauty and established it as a base and reason for success and prosperity in human life (al-Muqtataf 1921). Socrates (469-399 BC) was the first questioner who wondered about the definition of beauty. His student Hippias answered him by naming some beautiful beings, but Socrates stressed that his question was not about what is beautiful, but, what constituents make a particular object look beautiful (Hakiem 1984). In the modern time, the question is supplemented by another question, which Dounby Townsend (1997) phrased as, why do you see a particular being as beautiful? The first question suggests that if beauty is a property of an object, a judgement on this object would be either positive or negative. This could be true in one case, if the perceiver is always the same person (Vaida 1998). In the modern world, it has been realised that what makes something beautiful for one person might not work for another. This is because beauty is not only a function of definition but also, as Dagher (1999); Vaida (1998) claimed and Townsend (1997) expressed in his question, it is a function of preference which is guided by a complex network of beliefs, paradigms, and most importantly philosophies that humans, as holders of cultures, accept. Thus the viewer became an essential component in the operation of examining the beauty of the object. In modern times, the question is redirected: what causes the eyes to value such an object as beautiful? (Dagher 1999; Townsend 1997) rather than questioning the object only.

Aristotle (384-322 BC) and other philosophers of his era constituted an ancient view of beauty that has persisted through history. They defined beauty as a function of proportion, harmony, and definiteness (al-Muqtataf 1921). The Greeks understood beauty, as an independent and definitive attribute possessed by particular traits regardless of external perception (al-Muqtataf 1881). Humans' perception in this most ancient theory of beauty was subsidiary for they were obsessed by what artists prescribed of epistemological fidelity (al-Qaffash 1996). The forms of beauty they recognised, on the other hand, were physical and abstract. Physical beauty was based on order and harmony, whereas, abstract beauty was based on virtue, reality and knowledge. Both definitions of beauty were mutually expressed in 'perfection' as characterised in their diverse forms of art (Jellicoe

and Jellicoe 1987). From that time until the eighteenth century, order, harmony, and symmetry remained prevalent determinants of beauty.

In philosophy, reason was the only accepted authority in establishing an argument, whereas feelings and emotions were not considered as reliable foundations for the formation of rational argument. In the eighteenth century, when art was promoted to a distinguished status different from crafts, the term 'aesthetics' emerged¹. It arose, as Townsend (1997) explained, to 'provide a positive account of the role played by feelings and emotions in human thinking' toward art and natural beauty. Following the ideas of Rousseau, Hogarth, and Burke over the last two centuries such as regularity, variety, and sublimity have developed as examples of new views on ideas of beauty. The aim had always been to obtain an overall definition that captures tidily the value of beauty. In the present, this underlying foundation has been challenged in response to the infinite variety of definitions of beauty, and also the broad range of personal tastes. This alteration has dethroned beauty from being a quality to be studied virtually within its object, to a personal perception that need to be highlighted, analysed, and possibly directed to provide particular social, economic, or even environmental benefit. Beauty in this situation is appreciated as the effect that an object has upon a mind. The mind in this case is considered as sentimentally and intellectually trained to perceive and identify such an effect as beautiful or otherwise (al-Muqtataf 1881). Francis Hutcheson (in al-Muqtataf 1881) said, 'the word beauty is taken for the idea raised in us, in our minds, but only caused by some real quality in the object's which excites these ideas in us and therefore brings the feeling of pleasure.' This paradigm was justified by the dominant idea that man enjoys beauty because he has the appropriate rational faculty that reasons and values what he sees and perceives.

The Scottish philosopher David Hume (1711-1776), raised the debate whether beauty is felt or perceived. He said, 'Beauty is no quality in things themselves: it exists merely in the mind which contemplates them: and each mind perceives a different beauty' (David Hume cited in Gracyk 1994). He added 'This formula of beauty has resolved the old contradiction between the concept of regularity as a definition of beauty and the flower that has no connection between its beauty and the concept of 'regularity.' One of the major schools that came to exemplify such changes in the definition of beauty was the Bauhaus in Germany in the early 20th century. Paul Klee, the Swiss painter, graphic artist, and writer, was one of the foundational builders of the school in 1921. From this school, art independent of history, ethics, and traditions was established in the modern world.

Beauty was defined as a mere personal judgement. Following Le Corbusier's vision, a new definition of beauty was established on the basis of what you feel is what you like and what you like is what looks beautiful (Hackney 1990). In literature, Charles Baudelaire (1821-1867), the French poet proposed a similar line of thought regarding beauty in literature (Scharf 1975). Beauty, according to Baudelaire's paradigm does not comply with whether an object possess beautiful traits or not, however, what an individual sees of beauty in an object is more accountable to his own judgement, regardless of all other conventional references, (i.e. societal norms and religious traditions). In fact, modernism was based on the creation of cultures free of all sorts of restrictions that emanate from religions, traditions, etc. (Simmons, 1993). By the second half of the twentieth century reason became the absolute truth at a time when religion and other traditions were abandoned in most Western schools of art (Turner 1996). On the other hand, there is another alliance in art that profoundly opposes theoretical formulations of post-modernism that embroiled art in vague and obscure principles (Donald Kuspit cited in Lankford 1998). According to Lankford (1998), many scholars inside and outside the profession of art in the post-modern world have relinquished the idea of attempting to make art independent of its social, cultural, and historical context.

Currently, many theoreticians on aesthetics maintain that beauty is a creation of humans when humans are absent no aesthetic evaluation of objects occurs. who if were not there, objects would not have been evaluated aesthetically. This supports the previous argument that suggests beauty is an idea in us formed by our minds rather than a property possessed by the object. Nevertheless, others like Thomas Reid argues that beauty is a real quality in the object with and without the presence of man; an object is beautiful because 'it has its excellence from its own constitution, and not from us' (Nauckhoff 1994). Yi-Fu Tuan (1989) supports an opposite view where he argues that aesthetic experience is an intellectual experience operated by the mind. The mind itself does not possess, naturally, responses to all different types of stimuli, we develop reactions by accumulating knowledge, experience (Eaton 1998), and imagination (Brady 1998; Sheppard 1991). Nevertheless, Tuan (1989) highlighted that aesthetic appreciation that lead into pleasure can be promoted by experiencing the external superficial appearances of objects rather than trying to understand in-depth hidden qualities and justify sensual aesthetic appeal to intellectually apprehended attributes and effects. In real life, this ideology, which Tuan (1998) called 'surface phenomena' might involve daily aesthetic experiences. Nonetheless, even what we consider ordinary daily experiences are originally based on knowledge and then have become standards. With new encounters we might

¹ The word 'aesthetics' is first used philosophically to refer to feelings as opposed to clear and distinct ideas by A. G. Baumgarten, *Reflections on Poetry* (first published 1735; Berkeley: University of California Press, 1954).

also respond to superficial appearances, however the mind quickly standardises such experience and starts seeking other values to justify appreciation beyond external qualities.

8.2. Nature and aesthetics.

Pillars of aesthetic theories of the renaissance such as Michelangelo and Leonard Da Vinci, defined the aesthetic as ‘an ideal and golden model that comes as a result of harmony and order’ (Hamdoun 1984). This understanding of aesthetics formed the base of the Western principles of separating aesthetics from benefits. Edmund Burke (1729-1797) rested his definition of beauty on the assumptions that beauty ‘is no creature of our reason, it strikes us without any reference to use and even where no use at all can be discerned.’ He admitted also that ‘the order and method of nature is generally very different from our measures and proportions.’ Beauty can then be defined as ‘some quality in bodies, acting mechanically upon the human mind by the intervention of the senses’ (Burke 1998). Theoreticians of aesthetics have also differentiated between natural beauty (beautiful by nature, in other words, the subject naturally possess emblems of beauty) and the aesthetic (the subject does not necessarily possesses emblems of beauty but is presented in a beautiful way). In other words, art according to this paradigm, is not necessarily a representation of a beautiful subject, but a beautiful representation of an interesting subject, phenomenon, event, etc. This is what Romanticism ratified when considering the representation of supposedly unbeautiful subjects as a possibility of beautiful being according to particular idea held by a particular person.

On the other hand, landscapes that possessed spectacular and startling views were historically considered beautiful and therefore acquired great deal of cultural acceptance. Landscapes that did not conform to a societal definition of beauty have been historically neglected. To investigate this subject we might find it useful to discuss justifications for challenging the scenic value of the natural environment. Saito (1998) agree with John Muir and Aldo Leopold in considering hidden values of the natural landscape beside or other than scenic value. He reasoned that:

- i. scenic appreciation neglects the scenically challenged landscape,
- ii. appreciation of pictorially enjoyable objects may be limited or misguided where the philosophical underpinning is poorly developed. He argues that the 20th century has witnessed an aesthetic revolution that is overcoming pictorial appreciation of the natural environment.

One of the leaders of the revolution against pictorial landscape is the contemporary painter, Alan Gussow. In contrast to Thomas Hart Benton and Grant Wood, Gussow calls for a new appreciation

of beauty in modest parts of the natural environment. 'Health and sustainability' are examples of values Gussow suggested can be found in landscapes almost devoid of 'pictorial views' (cited in Saito 1998). Joseph Kupfer (1997) adds that 'the aesthetic of the austere should not be understood only in terms of what is lacking.' He argued that the contrast that exists in nature is a natural phenomenon that is appreciable. Situations of extremes, as Yi-Fu Tuan (1993) concluded might not yield extreme perceptions. In art we appreciate works that depict austere diversity of forms, colours, texture and pattern (Kupfer 1997). 'The British Isles' of Anthony Gormely in which thousands of, 20cm high, crude clay human figures were placed in a museum hall celebrating repetition of colour, form, size, and labour in a provocative way. What has promoted an acceptance for this type of art is our mode of perception.

Meinig's (1979) idea of 'ten versions of the same scene' expressed how much variation viewers might develop toward a visual stimuli. The 'lenses' through which viewers look toward a visual stimulus greatly influences perception and therefore degree of acceptance. From all these lenses, the aesthetic lens is the most controversial medium, and is targeted by many areas of study such as landscape architecture, ecology, fine art, philosophy, ethics, cultural theory, epistemology, criticism, anthropology, geography, and psychology (Berleant and Carlson 1998; Tuan 1989). The common focus at the centre of these disciplines is the application of aesthetic concerns to the natural environment. Art is one of these areas of study that has been argued as a model for the establishment of a theory of aesthetic appreciation of nature. Appreciation of art has long been ground for a controversial dilemma, as to whether aesthetic appreciation of art is based on knowledge (intellectual understanding) or emotions (sensory appreciation).

Kigan (1920) viewed beauty in nature as an absolute and, unlike art, it cannot be criticised, classified, analysed, or defined. For, as Al-Muqtataf (1921) argued, beauty of nature is a constant attribute that is not vulnerable to change. A foundation idea to this school of thought is that nature is always beautiful or sublime. John Muir considered every thing in the natural world, all nature and especially all wild nature, is aesthetically beautiful and it is only otherwise when man intervene carelessly. This detaches man from nature and denies that nature can be beautiful in the presence of man and/or signs of his craftsmanship.

Mediaeval literature on the beauty of nature showed no signs of considerations of wilderness, for the reason that danger was expected beyond cultured regions (McKibben 1999). Sandström (1975) said 'paradise in Semitic languages means and meant garden; not virgin natural landscape. Most societal interactions with nature are considered functional and purposive and aim to produce rational

cultural, social, and economic benefits. In gardens man enhances the beauty of nature by re-setting its components in the way that suit his desires, inherited knowledge and developed skills (Peschar 1984). Peschar (1984) for example, transformed a totally neglected wild landscape around black and white cottage into an outdoor gallery that hosted sculptural works produced in the Royal College of Art. It produced an example of the central dilemma; is it the garden adding to the medium through which the cultural artefacts are perceived, or is it the other way around. According to Peschar's philosophy (1984) establishing art in the landscape, i.e. sculptures, etc., in gardens add to the beauty of gardens. It confirms the imprint of human transformation in an already transformed piece of nature. In contrast to the classic and romantic ideals, this perspective represents a pragmatic post-modern ideology that sets the natural environment as a working place (Corner 1996). This view constitutes of a set of systems that work simultaneously to assure continuity in progress, production, expansion, and modernity. Meinig expressed this view as he said: 'Every landscape is therefore basically a blend of man and nature. Man may make mistakes, damage nature and thereby himself, but in long run man learns and nature heals' (Meinig, 1979). Within this attitude, the notion of 'beautifying' is rejected. 'To 'beautify' is merely to plug in replicas of aesthetic treasures' (Lowenthal 1968). Anon (1996) in an article titled 'The urban Cosmeticians, . . .', question the objective of 'anti-ugliness' campaigns and describes them as 'unrealistic.'

8.3. Artistic Approach of Aesthetic Appreciation of Nature.

Within philosophical aesthetics, Allen Carlson (1997) highlighted the difference between appreciation of 'art' and appreciation of 'nature.' With art, we know what we make: its components, its limits, its purpose, and how to use it because it is our creation and its creation is based on our knowledge. With nature, as George Santayana (cited in Carlson 1997) indicated, natural landscape is 'indeterminate, promiscuous, diverse, rich in suggestion and in vague emotional stimulus.' It is not made by us, but it surrounds us and we live in it. Thus we ought to find out what exactly do we have to appreciate in nature and how. It is obvious that there is no one comprehensive answer to these questions. In an artistic approach, for example, such as the Object of Art Model (OAM) (Carlson 1997), objects of nature, through the imagination, can be seen independently from their surrounding. But by doing this we are actually turning nature into independent pieces of art which contradicts Santayana's assumption that nature is 'indeterminate and promiscuous.' Holmes Rolston (1988) also stresses that 'every item' of nature 'must be seen not in framed isolation but framed by its environment, and this frame in turn becomes part of the bigger picture we have to appreciate-not as a frame but a dramatic play.'

Another artistic approach that address what and how we appreciate nature is what Allen Carlson calls the Landscape or Scenery Model (LSM). This approach conforms to what the eighteenth century called 'picturesque' (Hunt 1993). This model turns the landscape into series of paintings framed by our scope of vision and scaled by our distance from the prospect (Saito 1998). We read examples of this mode of appreciation from Richard Payne Knight's (1750-1480) poem titled 'The Landscape' (cited in Hunt 1988) in which nature is seen through an artistic eye. It reads:

To make the landscape grateful to the sight,
Three points of distance always should unite,

... ..

Not more, where Claude extends his prospect wide,
O'er Rome's Campania to the Tyrrhene tide,

... ..

And space, not beauty, spreads out its delights,
Yet in the picture all delusions fly,

... ..

The composition rang'd in order true,
Brings every object fairly to the view;
And, as the field of vision is confin'd,
Shews all its parts collected to the mind
Hence let us learn, in real scenes, to trace
The true ingredients of the painters' grace;

LSM also answers the question of what and how to appreciate nature but it still embraces an artistic approach that lack spontaneity, serendipity (Kupfer 1997), and turns the landscape into a static entity. It also limits the appreciation of the natural environment to scenic values that are aggressively rejected by the post-modern model of aesthetics (Saito 1998). Ecologists, naturalists, natural historians have their worries about this model in the sense that LSM emphasises the fact that we humans are concerned only with exploitation of nature whether physically or visually. The geographer Rees (cited in Carlson 1997) expresses this trend where he says: the picturesque 'simply confirmed our anthropocentrism by suggesting that nature exists to please as well as to serve us. Our ethics . . . have lagged behind our aesthetics. It is an unfortunate lapse which allows us to abuse our local environments and venerate the Alps and the Rockies.'

In both models, OAM and LSM, aesthetic appreciation of nature involves intentional actions such as isolating, imagining, distancing, and objectifying. These actions, as Carlson (1997) concluded are inappropriate for aesthetic appreciation not only of nature but of art as well.

Arnold Berleant developed another model which he called 'Aesthetics of Engagement' (AOE). In this model nature is appreciated as a space rather than a view. Berleant (1998) said:

'the boundlessness of the natural world does not just surround us ; it assimilates us. Not only are we unable to sense absolute limits in nature; we cannot distance the natural world from ourselves . . . Perceiving environments from within, as it were, looking not at it but being in it, nature . . . is transformed into a realm in which we live as participants not observers . . . the aesthetic mark of all such times is . . . total engagement, a sensory immersion in the natural world.'

Berleant's position takes a very different approach in the sense that the AOE he developed addresses natural, environmental, and cultural dimensions. It suggests that to appreciate nature is to be within nature, to comprehend its environment, and to act as participants not as observers. It suggests also that to appreciate nature is to appreciate every thing in nature. And if we are to appreciate every thing in nature, i.e. sounds, smells, views, and different weather conditions in different types of nature, we ought to be within rather than looking at nature. This approach reinforces the idea of knowledge linked to appreciation of particular aspects in the natural beauty, since natural environment differ in types and 'different natural environments, as works of art, require different acts of aspection,' as Carlson (1997) notes. This knowledge of the natural environment exemplified in the natural and environmental sciences are central to appropriate aesthetic appreciation which Carlson termed Natural Environmental Model (NEM). Allen Carlson (1997) explains this approach:

'when nature is aesthetically appreciated in virtue of the natural and environmental sciences, positive aesthetic appreciation is singularly appropriate, for, on the one hand, pristine nature is an aesthetic ideal and, on the other, as science increasingly finds, or at least appears to find, unity, order, and harmony in nature itself, appreciated in light of such knowledge, appears more fully beautiful.'

Meining (1979) finds personal emotions and feelings as more significant in appreciating nature aesthetically than scientifically. He said in regards to what he called 'aesthetic lens of viewing nature:'

'this, too, is a penetrating view. It seeks a meaning which is not explicit in the ordinary forms. It rests upon the belief that there is some thing close to the essence of beauty and truth, in the landscape. Landscape becomes a mystery holding meanings we strive to grasp but cannot reach, and the artist is a kind of gnostic delving into this mysteries in his own private ways but trying to

take us with him and to show what he has found. In this view landscape lies utterly beyond science, holding meanings which link us as individual souls and psyches to an ineffable and infinite world' (Meinig, 1979).

Rees, (cited in Carlson 1997), similarly, noted 'the taste has been for a view, for scenery, not for landscape in the original meaning of the term, which denotes our ordinary, everyday surroundings. The average modern sightseer is interested not in natural forms and processes, but in a prospect.'

Emily Brady (1998) also argues against objectifying aesthetic appreciation of nature that entails knowledge in its two forms, common and scientific. She said 'it strikes me as odd to claim that scientific knowledge is essential for appreciating nature aesthetically. Scientific knowledge may be a good starting point for appreciation characterised by curiosity, wonder, and awe, but is it necessary for perceiving aesthetic qualities?' In other words, is it necessary for an observer to learn that *Agave deserti*, which grow in north American deserts belong to the Amaryllis family which make it a kin to lilies (Schulte 1942b), in order to appreciate its beauty as a plant? To answer this question we might draw an example to show how knowledge affects degree of appreciation positively or negatively. A person without adequate 'common knowledge' of palm trees would find no reason to value a *swaidah*² palm tree aesthetically any different from any other palms that grow around it aside from acknowledging the difference between the diverse types of palm trees, *Phoenix dactylifera*. For a person with adequate common knowledge on palms, his knowledge would fit the particular forms or qualities that excite the agreeable tastes of aesthetics he/she possess. But common knowledge is more of personal and emotional experiences that differ from scientific knowledge that objectify perceptions toward the natural environment (Krutch 1995). David Humes (1711-1776) admits that scientific knowledge as a base for correct perceptual experience, which he defined as the 'standard taste,' degrade the role of common knowledge. James Shelley (1998); and Wertz (1998) challenged Hume's 'standard taste' for his paper had not given adequate contextual discourse upon what standardise 'the standard taste.' Gracyk's (1994) example might be used here to illustrate this point: 'if X is beautiful' means that an object is naturally fitted to cause a pleasurable response, there must be discoverable empirical regularities underlying 'general principles of approbation and blame.'

² *Swaidah* is one of the fine varieties of dates in Medina. During a perceptual trip around Medina palm gardens an interviewee, shiekh abd-al-Qadir al-Turki (1998), said talking to himself loudly 'it is by the well of Allah, how beautiful is this *swaidah*.' Although the palm tree was not bearing its fruits that make a differentiation between the palm and other palms possible, shiekh al-Turki had: (1) the faculty of knowledge that enabled him to distinguish between the *swaidah* and other palms and (2) the knowledge of *swaidah* palm that caused him to appreciate the *swaidah* aesthetically rather than any other palms around it.

The example given above, (see footnote 1), also challenges David Hume's argument, (cited in Gracyk 1994), that to a degree common knowledge could not differentiate between effects objects reveal and properties object possess in any perceptual experience. Hume argues also that beauty is 'only the effect which the figure produces upon a mind' rather than the properties the object possesses as Francis Hutcheson claims (cited in Gracyk 1994). Hume trivialises the aesthetic judgement of ordinary eyes for they in their judgement rely on their common knowledge that count for properties rather than the effects of objects where 'reflective impressions are considerably less predictable than sense impressions such as colours' as Hume suggest. However, for this percipient what evoked his aesthetic taste was not only the visible external qualities, rather, this encounter stimulated his common knowledge evoked from his memories, of other aesthetic qualities. Thus, his perception was more responsive to qualities revealed by the memories rather than the actual visible properties of the tree. Thus the assumption would be, when a stimulus does not evoke the admirable imagination, such a setting would not necessarily be perceived positively. When Edmund Burke (cited in Womersley 1998), as an analogous example, turned his eyes to edible vegetable, he could not see beauty in these because vegetables, according to what he had of common knowledge, did not have the proportion that he valued in ornamental plants such as roses.

Brady (1998) identified four specific modes of imaginative activity in relation to natural objects: exploratory, projective, ampliative, and revelatory imagination. She explained that 'alongside perception, these modes identify and organise many of the ways we use imagination when we appreciate natural objects.' Exploratory imagination enables percipients to detect the aesthetic qualities of a natural object by 'free contemplation.' Projective imagination draws from memory similar perceptual experiences to help percipients establish perception of unfamiliar stimuli, that might offer new experiences. Ampliative imagination go beyond projecting images onto objects. This entails the creative and inventive faculty of imagination. Wyeth (cited in Brady 1998) explains this mode with an example from the sea. 'A white mussel shell on a gravel bank in Maine is thrilling to me because it's all the sea—the gull that brought it there, the rain, the sun that bleached it there by a stand of spruce woods.' Revelatory imagination facilitates ampliative imagination but in a larger even global scale. Brady called the final achievement of such aesthetic imagination as 'aesthetic truth,' where one refers natural objects to their cosmic context.

Thus, Brady maintains that the aesthetic experience of an object, i.e. 'pleasure,' does not necessarily engender a desire to experience other objects. However, each perceptual experience has its own circumstances that can be a perceptual reference used to judge future perceptual experiences. Brady's aesthetic appreciation models dispute Immanuel Kant's

(1724-1804) idea which sees imagination as a personal emotional exercise that could create unrealistic properties from the stimulus (Budd 1998), which Bardsy (1998); and Anne Sheppard (1991) find as a necessity for most perceptual experiences. To elaborate upon this point an example will be drawn here. During the eighteenth century Edmund Burke (1729-1797) wrote 'the scenes are the great original of all our ideas, and consequently of all our pleasures.' Burke justified beauty in reference to properties and qualities of objects like size, texture, variety, delicacy, and colour. He continued:

'on the whole, the qualities of beauty are the following. First, to be comparatively small. Secondly, to be smooth. Thirdly, to have a variety in the direction of the parts; but fourthly, to have those parts not angular, but melted as it were into each other. Fifthly, to be of a delicate frame, without any remarkable appearance of strength. Sixthly, to have its colours clear and bright; but not very strong and glaring. Seventhly, or if it should have any glaring colour, to have it diversified with others.'

If we are not to see an object, but rather to listen to a properly illustrated description of its nature, as Burke did in the above quote, can we not thoroughly grasp the feeling of its beauty? It might be argued that such stimulation does not coincide exactly with what the visual perception enables of feelings and passions. Nevertheless, the mechanism that yields to the feeling of pleasure is valid in both cases. The effect that a natural object exercise on our feelings and that we perceive mainly through sight are acknowledged and understood by our minds. The mind then would evoke emotions and feelings of pleasure. Similarly, this action of perception can be processed but through other senses, i.e. audition. If the mind possesses images of previous experiences that correspond with the verbal representation (Burke 1998), such words would evoke images in the imagination and therefore will excite emotions to release the same feeling of pleasure evoked by the initial stimulus. Ikhwan al-Safa, on the other hand, highlighted that man does not only react positively to what he knows, feels familiar with, and likes of experiences, but, due to what he possess an intelligent faculty of imagination, which permit a positive appreciation of unfamiliar experiences (Daghir 1996; al-Takriti 1994).

Brady's (1998) argument that 'imagination, along with perception, is an important resource for taking up the aesthetic challenge offered by our natural environment' is very plausible, but it can be considered as scientific ground for aesthetic appreciation? Brady's model replaces Carlson's scientific context with an appreciative context by signifying imagination in the perception of nature. Nevertheless, and although common and scientific knowledge are not explicit in Brady's model, the four imaginative modes she suggested are inevitably based on what Carlson claimed to be

knowledge. She, for example, gave an example that addresses how projective imagination juxtaposes an image of a natural object with the imagination of its ecological environment as a way of perceiving that object. She said 'to appreciate the aesthetic qualities of an alpine flower, I might somatically imagine what it is like to live and grow under harsh conditions. Without imagining such conditions, I would be unable to appreciate the remarkable strength hidden so beautifully in the delicate quality of the flower.' However, the intentional involvement of such information in the imaginative perceptual experience could not be exercised without possessing either common or scientific knowledge of such conditions, i.e. the harsh conditions under which the flower lives and grows. One might not, distinctively, recognise the beauty of an *abal* flower (*Calligonum comosum*) on a greeting card without the knowledge that this delicate flower grows in sandy soil in harsh desert conditions. The more sophisticated knowledge we possess in this field, i.e. the ecological phenomena of *abal* flower, the more aesthetic appreciation one might achieve. Although Saito (1998) does not challenge this concept, he nevertheless questioned knowledge as a consideration in the perception of the natural environment. It is not always true that perfect knowledge is precisely and insistently required for every perceptual transaction with the natural environment as Saito understood of Carlson's model. Saito might be correct when he said 'an ordinary oak tree in front of my house may look much more exciting, amusing, and interesting when viewed as a maple tree.' However, it is not necessarily true that a mistaken perception can be argued as a perceptual model. In contrast, it seems logical to appreciate nature through a model that consider correct ecological and historical context of the natural object. Holmes Rolston (1988), for example, emphasises the essentiality of considering the placement of a natural object within its larger ecological, historical, or spatial context in order to appreciate nature correctly. Conceiving an *abal* flower in a mistaken ecological, historical and spatial context would not convey a unique aesthetic perceptual experience. By doing so, we are actually intervening somehow in the formation of the natural object. Changing informational background of the perceived composition means, it is not the natural composition of the object anymore, but a work of art and a creation of man. When Rolston stipulated knowledge of the larger context of a natural object in aesthetic appreciation, he suggested a rational, rather than imaginative, acknowledgement for the whole environmental, historical and spatial phenomena of an individual natural object. It is incorrect to argue that by appreciating these phenomena aesthetically, as Saito (1998) claimed, one would end up appreciating the whole universe. In fact the two positions of Rolston (1988) with his rationale and intentional approach and Saito (1998) with his emotional and spontaneous model do not actually contradict, but rather complement each other. Rational aesthetic appreciation of nature would lead eventually to emotional aesthetic appreciation and spontaneous aesthetic appreciation would most probably force the curiosity of the percipient to learn some facts about its beauty, in other words, to rationalise

his/her perception. To perceive a *samur* tree, *Acacia arabica*, aesthetically in a wild, dry, and scrappy landscape on the western edge of the *Nufoud* desert in Saudi Arabia, we cannot only look at its bare branches and thorny tips in exclusion of its other biological traits within its natural habitat. On the basis of Rolston's model, a correct perceptual judgement could not be placed without ample environmental, historical, literal, cultural references on which to base aesthetic judgement.

Despite obvious agreement about ideas of beauty among people, there are always 'distinct principles' that rest on general observations gained by personal experience as Gracyk (1994) highlighted. When Sheikh al-Turki said 'how beautiful is the *swaida*,' (see footnote 1) he was not primarily denoting the external visual looking traits of the palm that make it beautiful. However, his aesthetic predicated here as 'beautiful' captured his memories, knowledge, and feelings that might not be visible to others. These 'aesthetic expectations' as Schauman (1998) described include the visible and the invisible, the scenes that exist in our minds as well as in our reality.' This might be further conceived if we admit the fact that the language people frequently use to express their aesthetic perception of natural objects, as Townsend (1998) highlights, is rhetorical and does not necessarily imply only the direct conventional meanings. For example 'when I look out over a field of new green grass in the spring and say that it is 'fresh-looking, I am not thinking primarily of cattle feed. I am using 'fresh-looking' as an aesthetic predicate to describe my response to what I see' (Townsend 1998). Similarly, the adjective used here 'beautiful' does mean that a particular object looks beautiful, but specifying the name of the palm without obvious differences between this particular palm and other palms turn the term 'beautiful' from being an adjective to a metaphor that collectively states a personal experience.

As Sandström (1975) claims 'It is a normal trend in discussions about aesthetic values to oppose natural beauty to artistic beauty.' However, from another point of view, assimilating nature by art in exercising aesthetic appreciation might be a considerable approach. To illustrate this point, Saito's (1998) argument can be addressed here in which he claims that perceiving art on its terms could be troublesome in the sense such a way might trivialise participants' role of interpretation and limits approaching art from diverse perspective. In the case of natural environment, appreciation of nature satisfies various aims, interests, purposes, and contrasts participants' backgrounds. Nevertheless, all these variables construct a relationship with nature on the basis that nature ought to serve or at least please the human race in some way or another. This is, according to Saito (1998) what justifies the insertion of a moral dimension in the aesthetic perception of nature. He said 'the ultimate reason for aesthetically appreciating the scenically challenged is the moral importance of overcoming our perception of nature as (visual) resources to be used for our enjoyment.' "Training in 'nature study,'

in particular evolution and ecology, will 'promote perception,' not simply of the sensuous surface of nature, but the way in which its origins, functions, and mechanisms are disclosed and manifested externally" (Saito 1998). In the American scene, 'perception of scenery is open only to those who have no real part to play in the landscape. Those who know it and work in it have to concentrate on the humdrum realities' (Lowenthal 1968). This kind of training equalises aesthetically, as Aldo Leopold argued (in Saito 1998), externally grand looking objects with everyday natural objects. It also overcomes the culturally and stereotypic notions that some components of nature are as threatening, pesky, creepy, and ugly.

Leopold paraphrases this concept saying 'in the country, as in people, a plain exterior often conceals hidden riches' (cited in Saito 1998). Alan Gussow, enhances this notion where 'he calls for 'the cultivation of an ability to see beauty in more modest, less aggressive settings' such as tidal wetlands and wildlife habitats.' According to Gussow, 'their beauty is primarily based upon health and sustainability and is more subtle, less visible, than the grandiose splendour of the Grand Canyon, Yellowstone, or Mt. Rainier' (Saito 1998). This tendency causes us to undervalue other landscapes; 'at the beginning we search for something pretty or colourful, for scenic beauty, for the picturesque. Landscapes regularly provide that, but when it does not, we must not think that they have no aesthetic properties' (Miller 1984). He continues: 'the challenge to future research should not be to develop a better formula for quantifying scenic values, but to develop a deeper understanding of factors that affect peoples experience of landscape' (Miller 1984).

In summary, Carlson's model, the natural environment is appreciated aesthetically on the basis of scientific and common knowledge. With Brady's model the natural environment is appreciated aesthetically on the basis of personal perceptual interest and imagination. As Francis Hutcheson concluded 'it is possible to identify the qualities of objects which naturally cause the pleasure' (cited in Gracyk 1994). This is to say the determination of aesthetic qualities of nature is as important as judgement of ecological value. Both need to be evaluated in an objective manner in a way that complement each other. Acceptance of such approach would justify aesthetic appreciation of ecologically valuable landscape and facilitate ecological investigation for aesthetically pleasing landscape. Natural beauty in a modern sense supports a rationale attitude toward the landscape that considers knowledge and practical appreciation of the natural environments.

8.4. Nature in Western Culture.

Francis Bacon (1561-1626) defined gardens as follows 'the garden is an escape from nature because nature still posed a threat to man' (cited in Jellicoe et al 1991). This was due to the

predominant idea of the time that nature is 'the killer of men and literal place of the devil' (Budiansky 1995). This idea was abandoned during the 18th and 19th century in favour to the opposite view of nature as 'the perfect and uncorrupted work of God's creation-a place perfect in itself' (Budiansky 1995). Budiansky (1995) said 'nature was a place to find God; nature was God. As God was perfect and pure, so nature was perfect and pure.' In the international community in general and in Euro-American part of the world in particular nature, has received a remarkable amount of attention during the last two centuries. As early as the middle of the 19th century when philosophers like the American Henry Thoreau realised the destruction urbanisation brought to nature (Jellicoe et al 1991). During this romantic period, nature was romanticised, a trend can be traced in writings of people like John Muir (Budiansky 1995). Man was viewed as a source of corruption who brought destruction to the balance of nature (Simmons 1993). The "moral aesthetic" evolved in modern European thoughts of nature, especially in England where it was depicted as a genre of art within English literature (Tuan 1979). The romantic movement toward nature can be traced back to the end of the seventeenth century (McKibben 1999). This period was marked by English recognition of nature that spanned the new world from the old world. English intellectual culture became sympathetic to the idea that says "humanity is not superior to nature." This ideology contradicted the ancient classical world where nature was subservient to humanity (Tuan 1979). The English fascination with the beauty of nature was remarkable and led into an astonishing field of art called 'gardening.' People like Francis Bacon (1561-1626), Sir William Temple (1628-1699), and Sir John Vanbrugh (1664-1726) and many others brought that movement into being through their voluminous writings and gardening works. This trend initiated English interest in natural beauty which later-on led to the search for what Americans predicted as the endless possibilities and boundless opportunities in nature (Nasr 1968), i.e. sublime in the American landscape. Words like "pleasing the imagination," "scenes of grandeur, beauty, and variety," were among the most common terminology in English gardening literature during late 17th until early 19th century. We read for people like Anthony Ashley Cooper (1671-1713) who praised nature as a tool of God contemplation. At the beginning of his "*The Moralists*" he said:

'O GLORIOUS Nature! Supremely Fair, and sovereignty Good! All-loving and All-lovely, All-divine! Whose Looks are so becoming, and of such infinite Grace; whose study brings such Wisdom, and whose Contemplation such delight; whose every single

Work affords an ampler Scene, and is a nobler Spectacle than all that ever Art presented!

-- O mighty³ Nature! Wise Substitute of Providence!" (cited in Hunt 1993).

Andrew Marvell (1621-1678) is another example of an English poet of mid 17th century who wrote upon men of art and nature and the sublime beauty of nature. He wrote in the early 1650s 'Upon Appleton House', 'to my Lord Fairfax' who was the father of his student Maria in Yorkshire. In his writing we can trace emblems of supreme nature and its perfection versus human art of gardening:

IX.

The House was built upon the Place
Only as for a *Mark of Grace*;
And for an *Inn* to entertain
Its *Lord* a while, but not remain.

X.

Him *Bishops-Hill*, or Denton may,
Or *Bilbrough*, better hold then they:
But Nature here been so free
As if she said leave this to me.
Art would more neatly have defac'd
What she had laid so sweetly wast;
In fragrant Gardens, shaddy Woods,
Deep Meadows, and transparent Floods . . .

LXXXVI.

'Tis not, what once it was, the *World*;
But a rude heap together hurl'd;
All negligently over thrown.
Gulfes, Deserts, Precipices, Stone.
Your lesser *World* contains the same.
But in more decent Order tame;
You Heaven's Center, Nature's Lap.
And Paradise's only Map.

In western civilisation, Christianity was the dominant power that had shaped western civilisation before its decline in the early 19th century. Before this Europeans had experienced centuries of

³ Terms like O mighty, Glorious, etc., which are excerpted from Biblical writings were commonly found on writings on nature to express a divine state granted for nature.

Church control and sometimes oppressive political systems (Kazin 1988). According to Mohammed Qutb (1982) and Ahmed al-Tijani (1981), Europe escaped the church by divining nature as a 'God' during the romanticism movement. Charles Darwin (1809-1882) was the keystone for this movement, in which God became an idea rather than a reality. The science became the ultimate reference of modern life. Science of ecology that emerged at the end of the 19th century, for example, developed a pragmatic appreciation of nature's beauty. From that time on, a belief in the divinity of nature has filled that vacuum and created a new non-religious attitude of no religion in western manifestation of art (Clark 1988; Izetbegovic 1994). Clark's (1988) comment on this revolutionary transformation read as 'although it may seem irrational to us, the notion of sacred nature, has added a good deal to western civilisation.

In the modern world, the public's environmental awareness is grown enormously. In daily affairs, most businesses invest in this new nature-cultural variables to succeed in the market. One of the most common advertising statements that is found on paper products reads 'made of recyclable material.' Vertiflex' paper-products manufacturer in Pennsylvania, announces on its boxes, files, and folders, how recycling is a central concern of the manufacturer. One of the statements found on the box reads: 'Ecology 100% Recycled Hanging File Folders are manufactured and distributed by the Vertiflex Company. The Ecology stamp insure the highest quality, as well as the Vertiflex Company's dedication to manufacturing environmentally friendly products, and its commitment to preserve the earth's natural resources.' Starbucks Coffee Company in Arizona print on their cartons insulating sleeve 'this insulating sleeve is made from 60% post-consumer recycled fibres and uses approximately 45% less material than a second paper cup.' The first statement in the advertisement leaflet of Sheffield & Ecclesall Co-operative Funeral and Monumental Services reads: 'Natural Woodland Burials- for people choosing to be buried in an environmentally friendly way.' In institutions like the University of Pennsylvania, environmental issues embrace a supplementary educational form, which is supported by many groups within the campus. One of these forms is the Green Time publication, which the Daily Pennsylvanian publishes quarterly. In the issue of Spring of 1996, the Recycling update said: 'did you know...? Penn is recycling 50 tons of paper and 3 tons of glass, plastic and cans per week. This is 30% of Penn's waste stream. To date, in the year ending 1994, the University of Pennsylvania is the top institutional recycler in the Commonwealth of Pennsylvania.'

Within this culture, we find examples that express a fanatical degree of polarisation in natural-cultural generated conflicts. Wendell Berry (1990) in 'Why I am not going to buy a computer' explains his complete dependence on his wife and manual traditional tools in his writing and

farming to avoid 'a direct dependence on strip-mined coal.' A respondent of the 'back-to-the-landers' group in a study undertaken by Coffin and Lipsey (1981) said: 'I would like to be self-sufficient with alternative energy sources: grow and raise my own food and animals, nuts, fruits, etc; adjust my lifestyle . . . eating, and work habits as necessary to be self sufficient with sound nutrition.' They, the 'back to the landers,' deliberately abandoned 'high consumption lifestyle' mainly to diminish, as much as possible, their contribution to the degradation of the natural environment the modern world is committing. Randall Henderson (1968), however, showed a more modest attitude in this field. He wrote:

Training the intellect, as the schools are now doing, has developed an age of miracles in science and technology. But what is the gain, we may ask if we are still so primitive emotionally as to use these gadgets technology has created for our own destruction? . . . we've been placing all the emphasis on intellect and science. Perhaps we would do better if we devoted more of our teaching skill to emotions and morals.

Fischerlehner's explanation for this phenomena is that in cases when love of nature reaches a level of conscious mode, sense of personal responsibility toward its protection evolve to embody this emotional feelings in extreme practical expressions (cited in Kals, Schumacher, and Montada 1999).

On the other hand, there are many who still believe that humanity, not only in the west but all around the globe is contributing to the deterioration of nature (Budiansky 1995). McKibben (1999) stated many examples that express bleak image for the future of nature if man insists in maintaining irresponsible attitude toward nature. Since Classical time man has possessed un-endorse-able rights and powers over nature (Mckibben 1999). In modern human culture exist two entities; humans and all the universe. Only one is the thinker and the intelligent. Thereby, there must be one dominant and one who is dominated. This is what Simmons (1993b) called the simple ending to complex discourses responding to questions like 'what is the place of humankind in the universe? The segregation between the two 'us' i.e. humans and 'it' i.e. nature only exist in humans' culture and language. Another perspective is one that consider nature 'an artefact of mental processes and therefore is quite inseparable from human' (Simmons, 1993a). The romantic idea of the 18th and 19th centuries that made man responsible for various kinds of degradation of nature is not accepted among all ecologists today (Budiansky 1995). In reality modern man controls nature through colonisation, adaptation, transformation, and endless list of cultural processes (Corner 1991) that imply 'we are the people at the top of the evolutionary ladder and our intelligence has allowed us to do some remarkable things' (Simmons, 1993a), i.e. nature is construct-able and consumable and humans with their intelligence are able to reshape it to meet their needs. Rose (1992) exemplified

this view by highlighting the revolutionary emergence of 'incorporations' and the placement of transformed materials of nature on the shelves of markets. When man's perception of nature has changed overtime and over geographical locations, (i.e. nature was seen as crude, ugly, but romanticised by the seventeenth century, and rationalised lately and seen from a pragmatic point of view; seen as grandeur in some places and ugly in elsewhere), man's reliance on its resources has never changed primarily in terms of attitude

This paradigm underlie most modern cultural developments (Mckibben 1999) that range between building construction that influence the overall image of any urban domain and the manufacturing of artefacts that contribute profoundly to the changing of societal behaviour.

Modern technology competes also with natural beauty not only in space, whether in city or countryside, but also in changing public visual preference. In large cities, revolving restaurants are placed at the heart of the city overlooking streams of perpetual vehicular traffic. Sky scrapers are justified in artistic terms to capture the scenic landscape of the sky and bring man in contact with nature (Spirn 1988). City silhouette is considered as a splendid view that can be associated in a design as it is the case in the Red Rocks Amphitheatre in Denver city, Colorado in which the city silhouette is the background of the theatre (Spirn 1988). In modern times, man is not only an observer of nature, but also a competitor with its natural beauty by creating his own forms of aesthetics. Artists like Paul Klee, who joined the Bauhouse School in Weimar and later moved to Dessau, Germany (1920-1923), said: 'in the modern life, man does not only appreciate the natural beauty, he compete with nature in the creation of aesthetics in his environment.'

8.5. Early American Attitudes Toward Desert Landscape.

8.5.1. Historical Background.

The connection between desert and the devil was strongly evident in early Christianity. In the old testament, desert exemplified by Sinai was accorded vicious attributes: 'death, disorder, and darkness.' This explains God's punishment to the Jews to wander in the Sinai wastes for forty years. The story of the hermits who tried their faith in the Egyptian desert with Satan, his minions and the wild beasts was portrayed also in 'a devil realm of the Satan' within a desert landscape (Tuan 1993). The lonely environment of the desert seduced the hermits to exercise their peaceful belief gambling with devil spirits and Satan who had colonised the desert valleys and mountains' caves. The misanthropic attitudes of hermits and Church fathers encouraged the seeking of solitary environments that would make contemplation of God possible. Though the presence of the desert

monarch, Satan and his servants, hermits found themselves invulnerable to his evil and imagined themselves in Eden. In this transcendent spiritual state hermits isolated themselves from ugliness and harshness represented by desert and sought the beauty that is represented by Eden.

This bleak attitude of the west to the desert delayed scientific discoveries of desert parts of Earth. It was not until recently when westerners conceived desert, other than as hostile and inhospitable landscapes (Aronson 1979). Up to the late eighteenth century ‘Lower Egypt and a narrow spot upon the coast of Peru’ were the only dry lands approved by scientists like James Hutton (Tuan 1993). At that time desert in the Christian eye, in the Western civilisation, was the bleakest part of earth as a creation. David Teague (1997) indicated that in ‘Exodus and Deuteronomy, desert wilderness was a place of punishment and atonement for a stiff-necked people. Created by God as an expression of his wrath, the desert was a landscape of ‘brimstone, and salt, and burning, that it is not sown, nor beareth, nor any grass growth therein like the overthrow of Sodom, and Gomorrah, Admah, and Zebuim, which the Lord overthrew in his anger and in his wrath’ (Teague 1997). Its nature contradicted God’s wisdom. It was considered as wasteland lacking God’s presence, a realm of evil spirits fleeing God’s control and God’s punishment for Adam’s sin that entailed God’s curse. In the Bible there was a collection of accounts that attributed deserts as being due to God’s debasement; an ethos that reflected the ancient Christian discrimination against desert environments (Tuan 1993). Budianski (1995) find it natural for the ancient world to ‘view such lands as cursed, the home of demons and evil spirits’ for religion was a major influence on man’s perception of nature. In the recent history, this view persisted for long time. In the American deserts, the link between the devil and deserts was intensified as early settlers misinterpreted the native people worshipping spirits of holy places, e.g. canyons, mesas, etc., as devil worship (Gruchow 1999).

The justification for these attitudes are not connected to national purity, nor religious idealism, but to ideological paradigms. The ideal God and the ideal landscape within a wise divine creation was very dominant also in the Western civilisation. This defied the conceiving of God’s wisdom in creating two extremely different environments, i.e. harsh desert and temperate pastoral landscapes. This was clear in the art of the Picturesque period that flourished in Europe from the mid eighteenth century to the early nineteenth century. Tracing the works of Claude Lorrain and Gaspar Poussin would give clues of the transported ideologies from the Italian landscape. Such paintings demonstrate the fascination of artists and travellers with scenes of the Italian countryside. The ideal verdant landscape of temples and magnificent trees in the foreground, castles, a bridge leaping over a peaceful brook in the middle ground and mountains stretching beyond became a prototype in English art. This appreciation of landscape “beauty” did not extend to other landscape genre, for

example “desert landscapes.” This is due to the fact that during that period the landscape was preferably evaluated in terms of how it looked rather than how it worked and how much pleasure it conveys rather than how successfully it functions (Corner 1996; Turner 1996; Lowenthal 1968). Additionally, familiarity with landscape played a major role in determining people’s degree of appreciation of, what to them, was alien landscape. What looks familiar is much easier to accept, especially in this case where desert is the extreme opposite to the European temperate landscape.

i. Desert as Monotonous and Sickening Landscape.

A myth of the land as wilderness was constituted by early settlers as one of the ways of disguising the factual presence of the natives (Simmons 1993). Early Americans were shocked not only by the deserts of the south, the whole continent was a mosaic of shocking realities they experienced from the first moment of arrival in the new world. In the north, they perceived the land as ‘threatening’ and ‘untrodden tract’ since it lacked humans like them, to their eyes, ‘savages.’ ‘The virtual absence of man’s artefacts appalled viewers. Indians were few, nomadic, ephemeral; their works scarcely detracted from the powerful impression of emptiness’ (Lowenthal 1968). What they saw was not identical to what the Indians who previously inhabited the land and were acquainted with what, to the new Americans, were unknown phenomena. L. Bear (cited in Lowenthal 1968) stated the two different entities and their perceptions toward the one landscape as follows: ‘Only to the white man was nature a ‘wilderness’ and only to him was the land ‘infested’ with wild animal and savage people. To us it was tame. Earth was bountiful and we were surrounded with the blessings of the Great Mystery.’

In 1811 Zebulon Pike wrote ‘all the rest of the country presents to the eye a barren wild of poor land, scarcely to improved by culture’ (Teague 1997). In May 1851, J. R. Bartlett, characterised the south-western plains of New Mexico as ‘barren and uninteresting in the extreme. One became sickened and disgusted with the ever-recurring sameness of plain and mountain, plant and living thing. Is this the land, which we have purchased, and are to survey and keep at such cost’ (Tuan, 1990). Until the second half of the nineteenth century, the Great American Desert between the Great Plains to the Pacific Coast was represented in geographic literature as ‘an austere and unforgiving wilderness.’ Anglo-Americans took easily to desert-hating. These were people whose standards of beauty were set by the heavier rainfall of Europe and the eastern United States, and whose notions of proper settlement rested on farmers growing green crops. Ervin Zube (1982) described views confronting early settlers in the Southwest,

‘for most of the landscape it was not a dense, dark, temperate, forest wilderness but rather, an open, bright, and arid wilderness with occasional coniferous forests at the higher elevations

and mesquite groves in riparian zones. Instead of vision being limited by trees and understory, views were seemingly endless.'

The new Americans view of desert landscape ranged between sickening and monotony. Accounts in diaries of early travellers and settlers, commonly express views such as:

' . . . except for certain trees which follow the bed of the river, poplars, willows etc. the country presents nothing but a stretch of monotonous white. A scanty growth of grass about the spring offered some relief to the eye, after the dull monotony of the surrounding desert' (Rideing cited in Zube 1982).

Settlers dreaming of the agrarian landscape looked at the desert, and saw 'their worst nightmare' (Limerick and Southall 1992). In addition to negative personal perceptions of the American public toward the deserts, for centuries, the American government saw these lands as 'a miserable and punishing obstacle towards reaching the West.' Specialists in horticulture and agriculture held a similar attitudes and found the desert as an unreliable life sustaining environment. Emory, W. H., for example, of the Boundary Commission argued that the Great Plains west of the hundredth meridian are 'wholly unsusceptible of sustaining an agricultural population, until you reach sufficiently far south to encounter the rains from the tropics...or westward until you reach the last slope of the Pacific' (Tuan, 1990). In New Mexico, the early settlers was divided into two groups with reference to their perception of the natural environment of New Mexico. Based on ethnic origins of these groups, the Spanish conquerors were uncritical about climate and soil, whereas Anglo-American explorers and surveyors were very much influenced by the climate and appearance of the landscape, (Tuan, 1990). Americans or 'the people of plenty' as David Potter highlighted, within their struggle for terms to use for their desert landscapes heavily used 'waste land' for any, apparently and from their perspective, obsolete landscape (Teague 1997).

Bareness and dryness were the major negative aspects Americans found in desert landscapes. One of the early travellers wrote of Pike's Peak: 'The dreariness of the desolate peak itself scarcely dissipates the dismal spell, for you stand in a confusion of dull stones piled upon each other in odious ugliness' (Rees 1975). Toward the Southwest, Lieutenant J. H. Simpson said when passing through the Navajo country of north-western New Mexico: 'But never did I have, nor do I believe anybody can have a full appreciation of the almost universal barrenness which pervades this country, until they come out, as I did, to search the land and beheld with their own eyes its general nakedness' (Tuan, 1990). He described also the landscape as having a 'sickening-coloured aspect, one which until familiarity reconciles you to the sight, you cannot even look upon without a sensation of loathing.' Even early writers who led the campaign against the Anglo-American

loathing of the desert initially found it difficult to write sympathetically about the desert. Mary Austin, for example, who later on became one of the pioneer writers on the South-western desert, wrote 'hate implicitly . . . the land, stretching interminably whitey-brown, dim and shadowy hills that hem it, glimmering pale waters of mirage that creep and crawl about its edges' (cited in Norwood and Monk 1997). These attitudes to desert landscapes have persisted over time. Paul Gruchow (1999) in his description of his journey to the Independence Rock in Nebraska wrote, 'there was the endless line of distant hills and mountains, the grey-green monotony of the arid flora, the continual parade of clouds from which no rain fell, the unceasing undulation of the earth like the waves of the sea, each new wave identical to the last.'

ii. Views of purposefulness toward desert landscape.

The South-western and western deserts of north America were inhabited for up to 20,000 years by native Indians who shared the land with Mexican and Spanish cultures from 1600s on and have finally been accepted as home at the last century of the second millennium by Anglo American people. Teague (1997) attributed this late acceptance of desert by Anglo Americans of temperate origin to physical and psychological obstacles. Physical obstacles included natural and economic challenges. In 1811 Zebulon Pike (1889) established the initial assessment of desert as inhospitable in the mind of America's growing population looking for further land to explore and inhabit. He said in his report 'the country presents a barren wild of poor land, scarcely to be improved by culture' (Pike 1889). In 1843-44, John C. Fremont in his exploration of the American deserts reported the Great Basin Desert to be of 'dreary and savage character' and its future productivity as sterile and unpromising due to its dryness and scarcity. Without irrigation, no life could prosper and for the Americans who had no experience in agriculture in arid lands, desert seemed merely uncultivable land and impossible to work with or settle in. High productivity and economic revenue dominated the American value toward the landscape at that time. It seemed also that this physical obstacle was accompanied by psychological obstacles. The American desert was neither seen as productive, nor aesthetically pleasing. 'The naked earth of South-western deserts struck most Anglo Americans as a pretty bad idea' (Limerick and Southall 1992). What made this situation more intense is what Teague (1997) and Tuan (1991) defined as 'a moral dimension' to early perceptions toward the American desert. The notion of desert as a land of banishment resembling the Sinai desert of Egypt, had manifold influences on Judeo-Christian American perceptions of desert. In their mind, 'the deserts had been made wastelands because those associated with them had displeased God. This dogma restricted American expansion of their economy toward the western and southern edges of the country. Despite being seen to be a nation based initially on rationale culture based on pragmatic doctrine informed by scientific discoveries and reason, early Americans were troubled by the notion of God's curse on the desert in their country (Tuan 1993).

Anglo-Americans were brought into close contact with the desert of the Southwest in search of minerals like gold, silver, or copper (Limerick and Southall 1992). Exploitation of minerals, pastures for cattle grazing, and arable lands suitable for farming formed early images of the Southwest landscapes. This image was predominately of landscape as an opportunity and as a future rather than anything else. We see this in frequent writings of early men who roamed the Southwest in search of minerals. Charles Poston, on March 2nd, 1865 described to the first territorial delegate to the U.S. Congress, the mountains of gold and 'the richest silver mines known to history.' Others who looked for pastures, admired the abundance of range lands and water, like a cattleman who said in remembrance of 1880s and 1890s: 'we thought that the range was everlasting; that there was no end to its possibilities' (Barnes cited in Zube 1982).

Dreams of gardens accompanied newcomers to the area who saw in Indians' farmed valleys a hope that their gardens in the desert would one day come true. A positive image of potential fertility was drawn for the south in one sense, man could triumph over the uninhabitable land. Geographical surveys initiated in 1864 commented in favour to the grand opportunity of rehabilitating farming in the valleys. The pioneers found themselves confronted with technical difficulties such as desert water harvesting techniques. Later on, the myth of 'rain followed the plough,' i.e. that it would rain on cultivated land, was invented and was widely believed by settlers. This myth soon faded as the dream of conquering the desert landscape was shown to be unsustainable leading to return migration toward the north. The early American colonisation of the south was not analogous to what the Arabs had done in *al-Andalus* (Spain). When Muslims expanded their territories toward the west from the Arab Peninsula in AD 640, they transported their dry land irrigation and cultivation systems with them to the southern part of Europe (Jellicoe 1987). Their success in cultivation and therefore survival in the landscape was due to the fact that they were familiar with the cultivation of more arid landscape than that of *al-Andalus*. Nevertheless, in 1866, Senator Charles Hayden anchored the dream in the Salt river by building a flour mill for farmers who would grow wheat (Zube 1982). Gardens stretched all over the fertile valleys of the Arizona, Sonora, and New Mexico like the ones of Gila, Santa Cruz, Sonoita, Rio Grande, Lorenzo Roundy. 'The image of 'despoiled nature' was replaced with the settler's image of opportunity' (Zube 1998).

Major conflicts between native Indians and American settlers were centred around arable lands, water sources, and hunting grounds (Cady and Woon cited in Zube 1982). Other conflicts were based on the contradiction between settler and Indian attitude toward nature. Leslie Silko's (1999) novel 'Gardens in the Dunes,' expresses the opposed worlds of settlers' and Indians' paradigms. For the native Indians, nature was the mother that 'provides for us all the necessities of life, from

birth up the time we die and then we go back to the land' (Carrie Dann cited in Drew 1995). For Americans, it was the land of opportunity and a new natural resource to be exploited (Meining 1979). When Americans perceived the development of towns, mines, roads, and railroads as contributing to personal gain and the necessary development of a new territory and future state (Zube 1982), Indians perceived those activities as means of destroying landscapes they valued and long established religious values toward nature (Silko 1999). Even in modern times when the desert was accepted into American culture, there are still stretches of deserts that are little known. The struggle between natives and Americans on natural landscapes is historically more intense in desert states. The Nevada desert is known as the Great Basin, is the home of military experiments, but is also home for many native tribes like the Western Shoshone, the Paiute, and the Washoe who fought against such testing of military weapons (Drew 1995). Ann Zwinger (1996) argued that 'we Americans have tended to regard our deserts as wastelands, and nowhere has this been more literally true than in the Great Basin. Vast areas of it have been mined extensively and set aside for military reservations, bombing ranges, and atomic test sites.'

iii. Views of desert as fear.

These early images, nevertheless, were mingled with widely shared fear of what seemed to be scorching heat, life threatening venous creatures, which included rattlesnakes, scorpions, and centipedes (Henderson 1968). Residents, travellers, and miners had frequently expressed the annoyance they had experienced in what they considered a 'dangerous and hazardous place' to be shunned by human beings. A newcomer, for example noted upon his stay overnight in the outdoors:

'the first night spent in the open air by a person habituated to city life cannot be very tranquil to him especially if it is in a country where rattlesnakes and centipedes abound My first thought was for rattlesnakes, and I took each boot with extreme care and shook it to expel any viper that might have selected it for refuge during the night' (Zube 1982).

Even early American travellers, who romanticised the western desert landscape, had no real direct experience with the landscape. In their journeys, luxurious Pullman railway cars were used as security against the harsh environment, but these sometimes produced unrealistic images of the landscape (Zube 1982). Nevertheless, by the time people settled in the area, they became adapted to ways of living with the presence of desert creatures. In contrast to the early perceptions of these creatures, Marie Schulte (1942, a) wrote:

'come and see this arid wasteland: . . . Deceptively attired lizards, angry rattlesnakes, brilliantly costumed scorpions-representatives of the desert who form your reception committee. They, like the desert are cruel, ruthless, and deadly, but still-breathtakingly lovely, mysterious, glamorous.'

Raids of Apache and other Indians and unreliable water sources were other factors that established a fearful image for the Southwest landscapes. Apaches were seen as part of the threatening landscape, as settlers at that time shared the idea that Indians were part of the wilderness. We read for example for the editor of the Prescott newspaper, describing The White or Sierra Blanca Mountain area in 1870, ‘. . . bear, elk, antelope, turkey, Indians and other wild game are numerous’ (cited in Zube 1982). On the other hand, in modern times this notion of fear has been fantasised in film through scenes and words. ‘Mauve Desert’ is a film/video for Nicole Brossard (1991) in many ways depicted desert as scenery and as events of threatening contacts between humans and the landscape. In one of the scenes an advertisement for the film reads: ‘here in the desert, fear is precise. Here there are only wind, thorns, snakes, wolf-spiders, beasts, and skeletons.’

v. Views of desert as scenery.

The earlier frontiersmen with their European experience of natural beauty were unable to adjust their perception to fit the natural beauty of the desert. This was true not only in terms of visual and emotional recognition of the landscape, but also in the language they used to praise the alluring features in the natural landscape. Words of appreciation associated with the European landscape style were inapplicable for desert landscapes. The desert itself was not totally barren and ugly. The desert contained many riparian zones, which were and still are an important component of the arid landscape. Not only from an ecological point of view, but also from aesthetic perspective. One of the common comments that some early diaries contained are the reverential remarks about riparian landscapes in the Southwest. Ervin Zube (1982) indicated that some new comers as old settlers, buffalo hunters, cattlemen, miners, Indian fighters, and stage drivers have noted the admirable views and rare scenic qualities of the landscape in their various forms of personal writings. Nevertheless, being handicapped with inappropriate language, a lack of appropriate technical knowledge on desert management, and an incompatible heritage of aesthetic perception, the desert landscapes of the Southwest remained unfamiliar and aesthetically unappealing. The merely utilitarian attitude exercised towards the Southwest did not lead to a cultural acknowledgement of the beauty of desert.

8.5.2. Changes in Perception Toward American Desert; the Ecological Perspective.

The Greek climatic zoning system was based on temperature, not on precipitation. This concept had a long history of influence on western perception of natural environments until the middle of the twentieth century (Tuan 1992). The romantic view of nature during the 18th and 19th century was replaced by the end of the 19th century by the idea of the sublime landscape that found beauty in wild, bleak, and immense environments. Budiansky (1995) said ‘the wild and terrible in nature was no longer the rubbish left over from the creation or the unenlightened province of the devil.’ From

that time on, western interest in the landscape was widened to include landscapes that support even austere ecological settings. The American Southwest desert, for example, achieved recognition by ecologists about the same time. Hoffmeister and Goodpaster (1954) attributed this to the discovery that biological diversity in deserts was as rich as in temperate landscapes (Zube 1998). The U.S. Fish and Wildlife Service considered the San Pedro River in Arizona as the nationally most significant ecological corridor with the richest diversity of terrestrial mammals in the United States and probably the second highest in the world.

Thompson (1975), highlighted how Anglo and Spanish Americans had two contrasting perceptions toward the desert landscape of Sacramento Valley. At that time, Anglo-Americans who based their perception on 'temperature' were uncomfortable living in that environment and were unable to cope with the aridity of the valley and saw it as barren and unsuitable for agriculture. For Spanish Americans, who had previous experience with similar home landscape in the south, the valley was a rich natural resource. This was obviously due to the fact they had developed techniques in farming arid landscapes like rain water harvesting and flood control techniques. Anglo-pioneers who settled in Sacramento Valley were able to change their perception toward their new home landscape, after they had gained knowledge in farming dry landscape, (Thomson 1975).

8.5.3. Change in Perception Toward American Desert; theoretical background.

In 1940 Erna Fergusson made a remark that sharply contradicted early American notions that considered desert as 'God's curse' (cited in Farah 1988). She wrote: perhaps our generation will come to appreciate it,' i.e. the desert, 'as the country God remembered and saved for man's delight when he could mature enough to understand it' (cited in Farah 1988). This revolutionary change in attitude coincided with similar changes in the world of art. Henry Sussman (1997) argued that the beginning of the 20th century had witnessed a remarkable alteration in the way artists saw natural and cultural beauty. This change was marked by a profound movements most of which rejected conventional attitudes and notions. As previously discussed, in 1928 the Bauhaus School of Design in Germany established a new trend of design, in which students learned to exercise a great deal of freedom in design and to make no commitment to any conventional definition of aesthetics and ideologies the society hold dear (Hackney 1988). Charles Baudelaire (1867-1921) was a pillar of modernism that proposed new definitions for beauty/ugliness that changed in most fields of art. Le Corbusier (1887-1969) around the same time set up an international archetype in architecture that rejected any traditional values of aesthetics. Irrespective whether this new trend had merits for

human culture or not, it led to the birth of new modern schemes detached from stereotypes and clichés.

These new, modern attitudes influenced western perception of nature and natural landscape. Toward the end of the nineteenth century, ecology as a science established new attitudes toward nature and wilderness (Budiansky 1995). In the United States, one of the pioneering themes that emerged in the 1930s was the naturalistic approach to landscape design, namely 'prairie landscape.' The concept of "natural" landscape, however, was not particularly new. The English had acknowledged the concept of wilderness in garden design during the late 18th century. William Robinson through his book 'The Wild Garden' first published in 1870, was the foundational base for the idea of 'wilderness' in the English garden culture. What was needed in those gardens, as Gertrude Jekyll (1904) concluded in her 'Wood & Garden,' is spontaneous development of vegetation sustained by careful management of undesired plants. Wild gardening was seen as a modern alternative to old fashioned beds of cultivated plants that it was thought would create more 'artistic and delightful gardens.' William Robinson (1929) argued that plants in wild gardens 'will look infinitely better than they ever did in set beds, in consequence of fine leaved plants, ferns, and flowers, and climbers, grasses and trailing shrub, relieving each other in delightful ways.' This approach had notably freed garden from its typical patterned morphology. Advocates of the idea were pleased by the way gardens showed up naturally responding to micro differences in landscapes and seasons. Nature-like designed landscape was established as a modern design approach that was initiated at a time when city dwellers escaped city life for the suburb. In 1920s, suburbanisation of the city was underway at a time when the American perspective toward such intensively developed urban landscape was changing with a desire for park-like environments (Wood 1988). Central Park, by Fredrick Law Olmsted had a profound effect on the idea of nature in design. This naturalistic approach had corresponded with the emergence of architects like Richard Neutra (1892-1970) whose approach to architectural design that developed in southern California is considered for its great elegance and simplicity. He incorporated native desert plants and established a visual integration between indoor spaces and outdoor desert natural scenery through large openings in his buildings. Teamed with Frank Lloyd Wright, Jens Jensen created the Prairie Style of architecture and landscape. Since the 1920s, Frank Lloyd Wright established many desert sensitive residences in the area in what has been known as 'organic architecture' that most of which had found their places in the American deserts, e.g. Taliesin West in Scottsdale, Arizona. Jens Jensen and his famed work 'the Lincoln Memorial Garden in Springfield, Illinois (1933) is one of the early initiatives that utilised a natural approach to garden design. A similar concept was developed in the Netherlands by people like Jaques P. Thijsse, Leonard Springer, and Ghijsse Hof. One of the early nature-like

garden was Bloemendaal near Haarlem designed by Hof and his gardener C. Spikes in 1925. Zuider Park in the Hague led into the development of the Heem Park movement developed by Broerse and Landwehr in 1940. In England, the William Curtis Ecological Park in London is a typical response to what has been developed in the Netherlands (Jellicoe *et al* 1991).

From cultural point of view, American opposition to other cultures that have stood the test of time had declined at least within the intelligentsia in the twentieth century (Lake-Thom 1997). Lois Rudnick (1997) indicated that during this time, people like Alice Corbin Henderson, Mabel Dodge Luhan, and Mary Austin were among those whose 'perceptions were rooted in their ideal of a multi-ethnic democracy that recognised the long-ignored social, economic, and cultural contributions of women, Hispanics, and Indians to the life of the region and the nation. All these national and international changes coincided with the birth of Anglo-American acceptance of the desert.

By the second half of the twentieth century, coding and management of natural scenic resources had been legalised (Lamb and Purcell 1990; Law and Zube 1983), giving rise to a new research body known as landscape perception and preference (Terry 1990; Sarinen 1976), that included desert landscapes (Hecht 1975).

8.6. The Role of Various Forms of Art in Tutoring American Perception of Desert Landscape.

8.6.1. Theoretical Background

In all fields of history of art, landscape of different types appeared simultaneously in art and literature (Sandstrom, 1975). The relationship between art and the society does not stop at moments of meditation in museums and by feelings of amazement in art galleries. Art, as Oscar Wilde wrote, at the end of the nineteenth century, plays a significant role in establishing beliefs, values, and standards of appreciation among a society. He said in his 'The New Aesthetics' (Wilde 1891, cited in Feagin and Maynard 1997):

'Vivian [. . .] all that I desire to point out is the general principle that life imitates art far more than art imitates life, and I feel sure that if you think seriously about it you will find that it is true. Life holds the mirror up to art and either reproduces some strange type imagined by painter or sculptor, or realises in fact what has been dreamed in fiction.'

The scientific justification for this position is, as Vivian replied:

'that the self-conscious aim of life is to find expression, and that art offers certain beautiful forms through which it may realise that energy.'

Art highlights specific aspects of a society and its environment by drawing attention toward the unseen and accentuating what the ordinary eyes takes for granted. This is because as Vivian responded to Wilde, 'no great artist ever sees things as they really are. If he did, he would cease to be an artist. Wilde (cited in Feagin and Maynard 1997) gave an example of this notion where he said:

'people see fogs, not because there are fogs, but because poets and painters have taught them the mysterious loveliness of such effects. There may have been fogs for centuries in London. I dare say there were. But no one saw them and so we do not know anything about them. They did not exist till art had invented them.'

When we see forms, colours, and textures, of nature, our tutored emotions and perceptions receive these characteristics with what significance they collectively compose. For inspired artists, these perceptions have their own intellectual interpretations that are re-produceable in poems, paintings, sculptures, and artistic books, etc. These genres of art are instructed by emotional perception and implemented by a tool of art. For this reason, artists differ radically in their perception, interpretation, and depiction of a landscape (Kigan 1920). The conclusion they compose in a landscape is purposeful and ever lasting. For lay people it is rather simpler in expression that in most cases reflect practical perceptions. For the public, the multitudinous significance that nature forms by its infinite compositions, in most cases, results in two general positions, i.e. like or dislike. Thereby, lay people seem to be emotionally less dynamic toward landscapes compared with artists. Ralph Waldo Emerson indicated in 1855 that people are capable of grasping beauty in nature, but artists with what they possess of 'higher sensitivity are capable of even greater insight' (Nadenicek 1997).

The first question then would be, why do artists have such dynamic perception toward beauty in nature? Artists are emotionally and intellectually conscious in their perceptions of nature (Rees 1975). The aim of their perception is the transmutation of what they perceive into artistic representations through various media to express particular values, ideas, a philosophical position, and to reflect personal interpretation. This is what Henry Ward Beecher (1813-1887) implied in his statement that reads 'every artist dips his brush into his own soul, and paints his own nature into his pictures.' The second question then would be, what enables artists' intellects and emotions to produce an elegant responses toward what they perceive of nature? A consensus has been established among theoreticians and critics in art that when an artist paints, it is the soul rather than the arm, the feelings rather than the prescribed theories, and the culminated history of cultural values. Kigan (1920) answered this question by highlighting the fact that artists have trained their

souls and intellects in the way that enabled them to perceive and transform what they perceive into laudable arts. He says:

‘the painter is not a mere depicter of the shell. His feet are swift as the poet’s; he goes as far afield. He also hears the harmonies that fill the air. He spreads on canvas, not that which others have told in words or breathed in sounds, for to them is their art, but the same feeling, fancy and spirit, in different, and it may be, in less or more befitting guise’ (Kingan 1920).

If a lay person were exposed to aesthetic stimuli, their passions would be anticipated in a particular manner. They most probably would not have the artist’s knowledge, labour, and skill, which enable the later to appreciate what he sees and transform such appreciation into forms of art. For the lay person, some sentiments and feelings are inevitable, but most are often vague, semantically limited, and irredeemable. The conventional knowledge they holds would enable them, most probably, to differentiate only between what is accepted as beautiful and what is pronounced as vulgar. What sets the artist apart from lay people is the ability to reveal his perception in many forms. However, knowledge is a common value that both the artist and the lay man share toward stimuli.

On the other hand, there are others who oppose this artistic view of aesthetic appreciation to nature, for example Emily Brady (1998) said:

‘in my enjoyment of the soft blue-green skyline of the Blue Ridge Mountains, my appreciation is guided by what I see, colours, shapes, texture, as well as folklore and other associations, but it is not directed by an artist or a body of artworks.’

Another practical point of view finds in art the power of updating life by inventing new and modern forms of thoughts, desires, fashion, etc. At the public level, people need this change and some times do not bother thinking of the logistics underlying such changes. Hegel (1997) accounted this desire for change to the fact that ‘alteration of figure, behaviour, and every sort and mode of external expression’ that civilised people exercise ‘proceeds from spiritual development’ through which man recognises his own self and then make his inner self explicit to himself and to others simultaneously.’ This demand of man is the universal task of art through which art would enable a society to express its time and life style as it had been the case with previous generations. Nevertheless, art’s influence on public life is on one hand continuous, and on the other hand temporal. Once it roots an idea within a social group, it goes on to invent another one, while the old one become a conventional part of the real world, like a new culture, idea, or style of life.

In the field of landscape, there are many researchers who see a practical necessity of bridging the gap between art and science and searching for a common ground that establish ecologically sound

and aesthetically accepted landscape (Nadenicek 1997). In modern landscape design there has been a remarkable tendency of merging aesthetics with function (Jonson 1995). This is because, as Rachell Bebb (1994) says 'visual arts can enhance our lives, have a civilising influence on society, and enable us spiritually and aesthetically to transcend our everyday existence.' In an analogous mode of thinking to John Ruskin (1819-1900) who preferred to teach his students how to paint so they would ultimately learn how to adore nature. Dunstan (1998) said; 'the public might need to learn how to appreciate nature in order to learn how to, in this case, act in and react toward nature.' Art performs this task for the human race, and landscape painting, as Ronald Rees (1995) concluded, has cultivated the love of landscape in most societies.

In the history of landscape painting, the landscape had always been a background for human activity in western paintings until the seventeenth century when the natural landscape was seen as worthy to be painted on its own (Rees 1975). The early Renaissance paintings were perhaps the most evocative ones in term of idealising the landscape and depicting a peaceful environment that implicitly invites the spectator to be situated within their frames (Simmons, 1993). From that time on, paintings of the natural landscape had been explanations of the landscape (Ruskin 1819-1900 cited in Simmons 1993), which somehow had taught lay people what and how to adore nature. This is why art theoreticians like Waldo Emerson (1855) in his theory of the aesthetic, advised against the creation of decorative kind of art that does not depict true nature, but to maintain the idea 'that art should be derived from nature, and that art, like nature itself, should be alive' (Nadenicek 1997).

Merging sculptures with nature by placing them outdoor or sculpturing nature itself is another form of art that has informed particular aspects in the relationship between man and nature (Bye 1983). Henry Moore (1898-1986), Constantin Brancusi (1876-1957), and Barbara Hepworth (1903-1975), A. E. Bye, Ted De Grazia, are some of those sculptors who adopted this trend in most of their works and their works remain symbols in the landscape that echo man and man's perspective of his environment (Simmons, 1993; Bebb 1994). Painting and its allied arts, therefore, are not simply visual portrayals of a scenic landscape, however, they are tools of education that can enter our souls into the bones of the landscapes and hint at or lead us towards understanding their functioning processes and phenomena (Qutb 1993; Bebb 1994; Simmons, 1993). Holmes Rolston, for example, exemplifies this tendency of art by saying;

'we search for something pretty or colourful, for scenic beauty, for the picturesque' that comply with our culture and traditions; 'landscape regularly provide that but when they do not, we must not think that they have no aesthetic properties' (Saito 1998).

Modern art supports the notion that in cases when traditionally and culturally identified emblems of beauty are not visible in a landscape, man should not ignore other less obvious forms of beauty that art and artists are capable of highlighting.

One of the major objectives of art is to evoke certain emotional feelings and reactions through charging the imaginative faculty by verbal and/or visual images to excite and fulfil innate spiritual demands (Qutb 1993). Successful art expands its view and extends its limits over the mind of the commentator and goes as far as the soul desires (al-Tawhidi 1972), because art possess the power of exploring unfamiliar images and the urge of searching for new methods of interpreting familiar ones (Abbey and Fiero 1986). On the other hand and despite the profound role of art in tutoring public taste and identified the undetected emblems of beauty in nature, conformation to the local culture and conventions of a society remains an essential pillar that have to be maintained to achieve acceptance by the public at large. Art that does not connect with cultural ideals and conventions fails to take its commentator beyond its limits (Qutb 1993). It rather contains its observer within its maker's prescribed personal believes and gives no chance for imaginative communication to evolve between the mind and a work of art. What can be considered as an alluring piece of art by a certain culture might hold no value according to the standards of another culture. Just like the fascination that one might taste in a particular script may be ambiguous to a reader in a different language. This leads to the conclusion that culture is a profound variable in art as well as in the process of appreciation of and communication with art. Art must avoid such conflicts to avoid misinterpretation that lead ultimately into rejection (Jonson 1995).

Literature, art, history, and geography were the cultural vehicles that conveyed the American landscape images to the public (Zube 1982). In the modern world, an artist is an interpreter and translator of nature. In an artistic way and through their work they 'make known existing facts in nature which were hidden before, or reveal our closer affinity with nature' (Kigan 1920). In addition, for artists, 'it is through knowledge, and by labour' (Kingan 1920). If we ignore labour, bearing in mind it is an innate rather than gain-able skill, we would end up with the second variable: knowledge. Knowledge is the foundational base not only for artists' labour, but it also instructs their faculties of sensation by which they create what we then recognise as art. Thereby, in the modern world what artists value in nature, regardless of its form of manifestation, has considerable influence on the public. Art provokes responses and invites multiple interpretations' (Abbey and Fiero 1986). These mediums can be considered as modern means of tutoring the public taste, which replace inherited traditions and customs. They convey knowledge through a painting in a hall, a statue centring an open space, an artistic book housed in a museum, a garden, a building, a poem, a fiction,

a concert, a T.V. program, a carnival, a ceremony, a parade, etc. In Arizona, Jimmy Swinnerton (1960) one of the 'Painters of the Desert,' confirms this hypothesis from an artist's point of view by saying:

'when I first went to Palm Springs, most people in the United States thought the desert was the worst place in the world. For fifty years I have been kidded or prodded for trying to educate people to make them realise the desert is a place of beauty. Now you should see them! I sat on a little hill down by Point Happy not long ago on a Sunday the roads to Indo, Palm Springs, La Quinta, Indian Wells, Palm Desert were clogged with cars. Old ladies, men, kids were running around with colour cameras and paint brushes oohin and ahing over the desert. They have just discovered it' (cited in Ainsworth 1960)

Randall Henderson (1968), a lay person, wrote: 'I have long been prejudiced in favour of this desert country but after seeing the Death Valley exhibits I think more of it than ever.' The poet Richard Shelton in his forward for 'Art and Geology' said that the paintings of Rita Deanin Abbey and G. William Fiero, (the authors), had helped him 'to train and improve his perceptual abilities, and to give him an understanding of some of the physical principles behind the harmony he knows is there' in desert. It is, on the other hand, a cyclic operation; what the public encounter of arts, as a garden, a poem, a building, a painting, a portrait, etc., influences their faculty of perception. And what artists find of the imprint of man in his/her surrounding is to a great extent a base for his/her creation. Kigan (1920) says 'it is for the landscape painter' for example, 'not merely to render nature with whatever intimacy and power he may attain, but above all else, to depict and expose, to interpret and translate man.'

8.6.2. The Role of Art in Shaping Americans' Positive Perception of Desert.

'Nature is not a stable objective norm against which art is assessed, but of course a kind of construct, something that we constantly have to redefine' (Spens 1996). This leads to different philosophical and ideological positions towards nature across generations in different cultures. For the Anglo Americans, whose view of the landscape was moulded by the English pastoral landscape and inspired by romantic poets and artists, this maintained upon their arrival in the Southwest a strong dislike of the landscape. The desert's epitome of ugliness and harshness had given them no chance to search for other unfamiliar forms of beauty (Saarinen 1988). For them the tool of perception was missing. It was not until the 1890s, when Anglo Americans began to develop a new attitude toward what had been seen as the inferior desert landscape of the Southwest. This new attitude was not the mainstream among the popular society of the Southwest, but began to be established by some forms of art which romanticised desert landscape in the minds of Anglo Americans.

In the 19th century, Elizabeth Manwaring argued,

‘the English who were the vanguard of the Romantic Movement came to their love of landscape through painting’ (Rees 1975).

Painting was the artistic tool that professionally and sentimentally translated natural beauty to the English gentleman. However, for Anglo Americans who were used to moist and green temperate landscapes, desert was conventionally considered displeasing and distasteful. Likewise, painters who found inspiration in delicate landscapes such as expressed in Monet’s *the sycamores* and *water lilies* would not have found equivalent beauty in desert. William Ware expressed this view in his reaction to ‘*Elijah in the Desert*’ by Washington Allston (1852) in which he did not like the structure of the landscape in the painting being composed of dead trees and bare rocks. He said

‘Mr. Allston neglected the general truth of nature, to single out and depict a subordinate particular, and that particular having no beauty or charm of its own though certainly possessing a sort of savage grandeur simply a piece of natural history and nothing more. . . . And to make it a principal object in a great work of art, is to degrade the art to the rank of a print in Goldsmith’s *Animated Nature*’ (David Bjelajac cited in Teague 1997).

In the period between 1830-40 Josiah Gregg also supported this attitude when he said

‘there is no part of the civilised globe, perhaps, where the arts have been so much neglected, . . . as in New Mexico.’

In the late 19th century, a new art called ‘Western Art’ free of the European style was initiated by people who became interested in the landscape and people of the West (Ainsworth 1960). In 1920s the desert landscapes that for long had been stereotyped as ‘Mirage Land’ (Carl Dentzel cited in Ainsworth 1960), ‘have fallen far from paradise,’ (Limerick and Southall 1992), artists finally found it as virgin ground for various creative art works. Ted De Grazia’s (1904-1976) gallery in the sun at Chapel in Tucson (McCracken 1973), Georgia O’Keeffe (1888-1986) in Albuquerque (Pollitzer 1988), Maynard Dixon (1875-1946) in various places in the Southwest and latterly in Tucson (Hagerty 1993), are examples of painters who found, as Charles Lummis did, the desert visually and spiritually rewarding. The skull paintings of Georgia O’Keeffe, the close up paintings of desert flowers of Bell, the photographed desert scenery of Alfred Stieglitz mark this transformation in artists’ perception of the desert. The desert became, as Patricia Lemerick (1992) indicated in her essays on Mark Klett’s works, ‘the natural habitat of the photographer’ and ‘the natural home for petrography.’ Artists had finally saw what ordinary people had not seen of beauty in the Southwest. They had drawn the attention of the public towards new non-Anglo American aesthetic emblems.

In desert, colours are scarce (Zwinger 1996). This scarcity of colour had a significant influence on people's selection of tools and mediums to artistically represent their landscape. In Saudi deserts, for example, the use of colour in pottery, which is considered a cultural representation of the local natural landscape, was limited to the natural colour of the surrounding materials. This can easily be assumed if we compare the natural landscape and cultural artefacts that represented this landscape in Medina, which is predominantly of desert landscape, with the Asir region, which has a more temperate landscape. The bare valleys, pale grey scrappy vegetation, dark colour of *harrat*, and patches of oasis-like landscape of Medina change dramatically in the Asir region, about 800km to the south. In the Asir mountains, the juniper forests penetrated by rich green terraced agricultural fields are the dominant landscape in the south. This change in the natural landscape is followed by change in architectural design and tools of decoration and ornamentation, in which colour performs a profound role in articulating this difference (figure 8-1). In the Southwest American desert, native tribes like the Maricopas who inhabited the desert, 25km to the Southwest of what is now Phoenix, are very popular for their unique pottery. In their works, patterns and symbols were more powerful in their art rather than the colour used to paint these patterns and symbols (Fernald 1995) (figure 8-2). The natural colour of clay adorned by black patterned ornament were the only colours used to portray scorpions, lizards, and mesquite leaves on pots and ewers. Similarly, early people of Medina developed a largely monochromatic culture, but, rich geometric ornamentation in their various forms of artefacts, e.g. wood works in *rowsahn* (oriel), pottery, etc. The monochromatic culture of the desert was positively perceived and accepted to the extent it has been used in the cultural representation of the landscape. No additional medium, i.e. colours were required to enhance this relationship.

In contrast, in the early 20th century Georgia O'Keeffe, the Anglo American painter used modern, bold colours in her paintings of the South-western American deserts. With her Anglo-American cultural background that inspired her first works, most of which were of close-ups especially of flowers (Rose 1986) (figure 8-3), she found it more meaningful to paint the mountains blue.

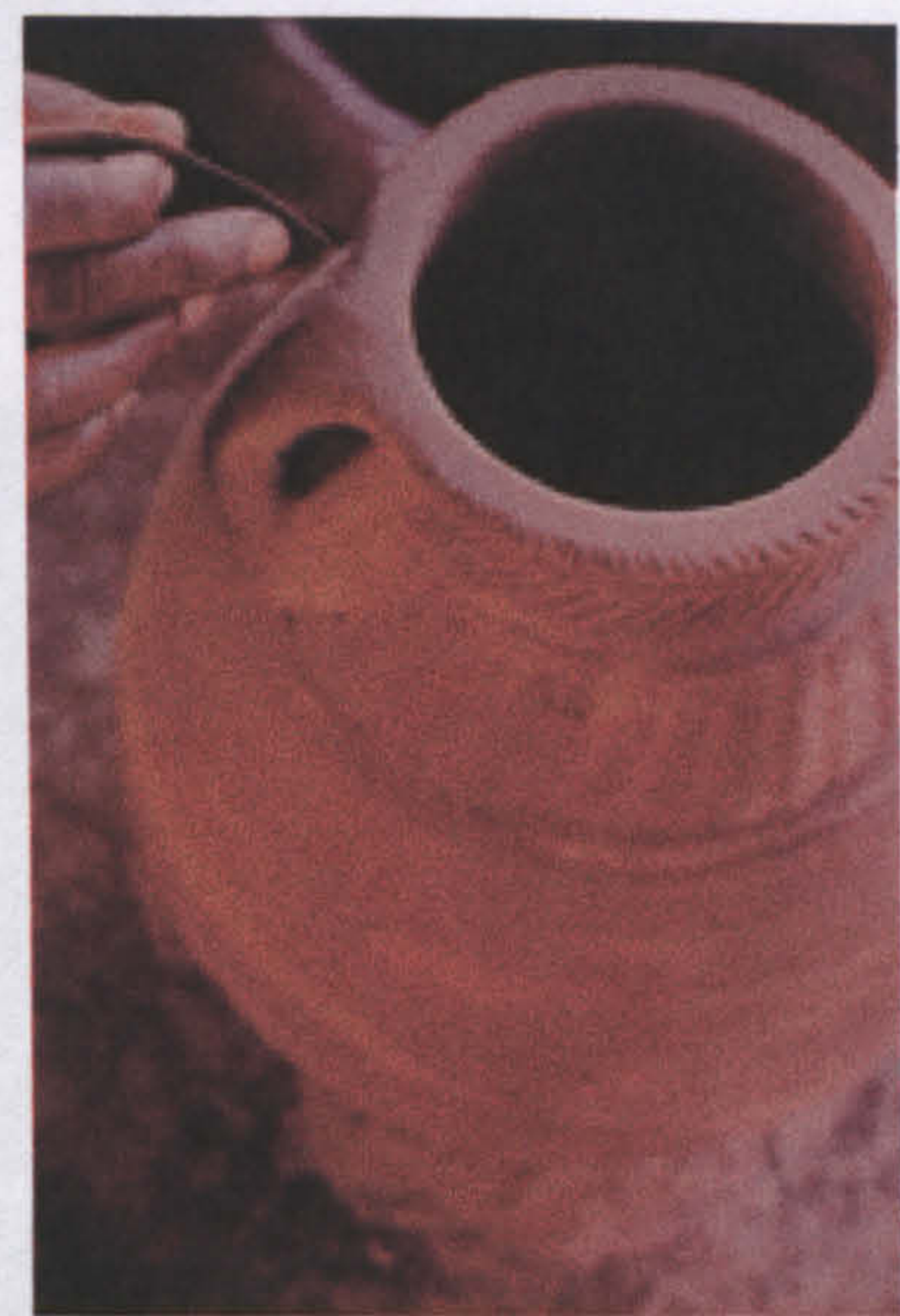
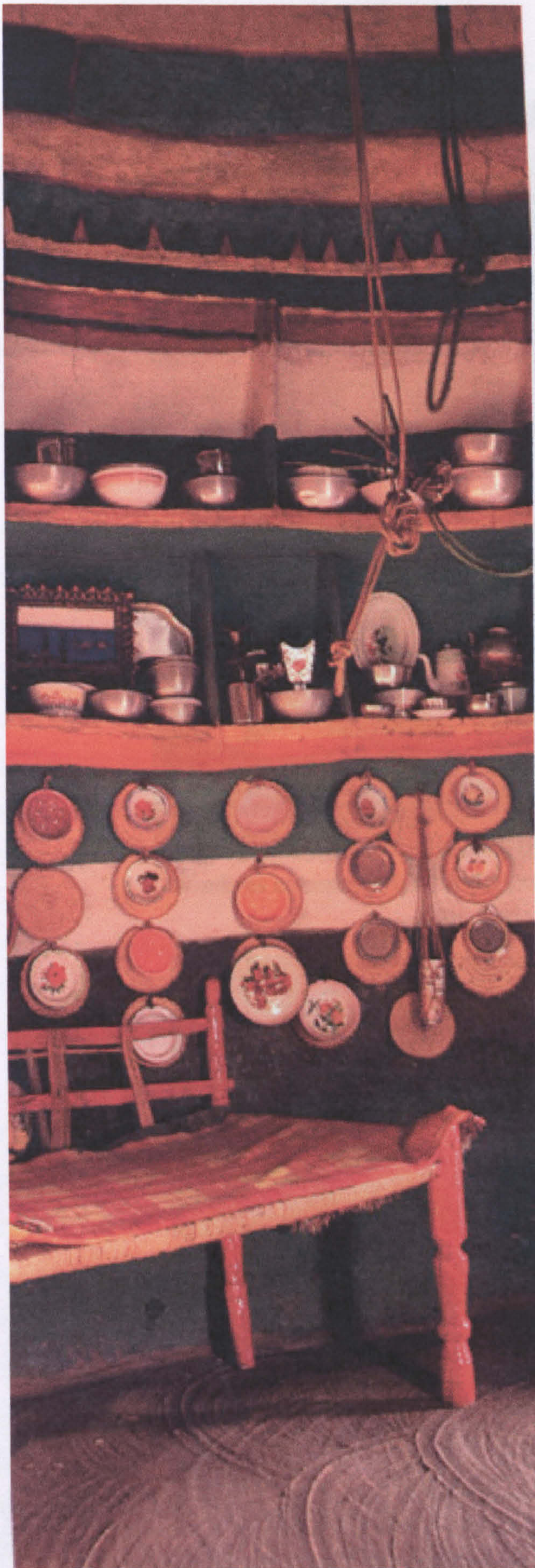
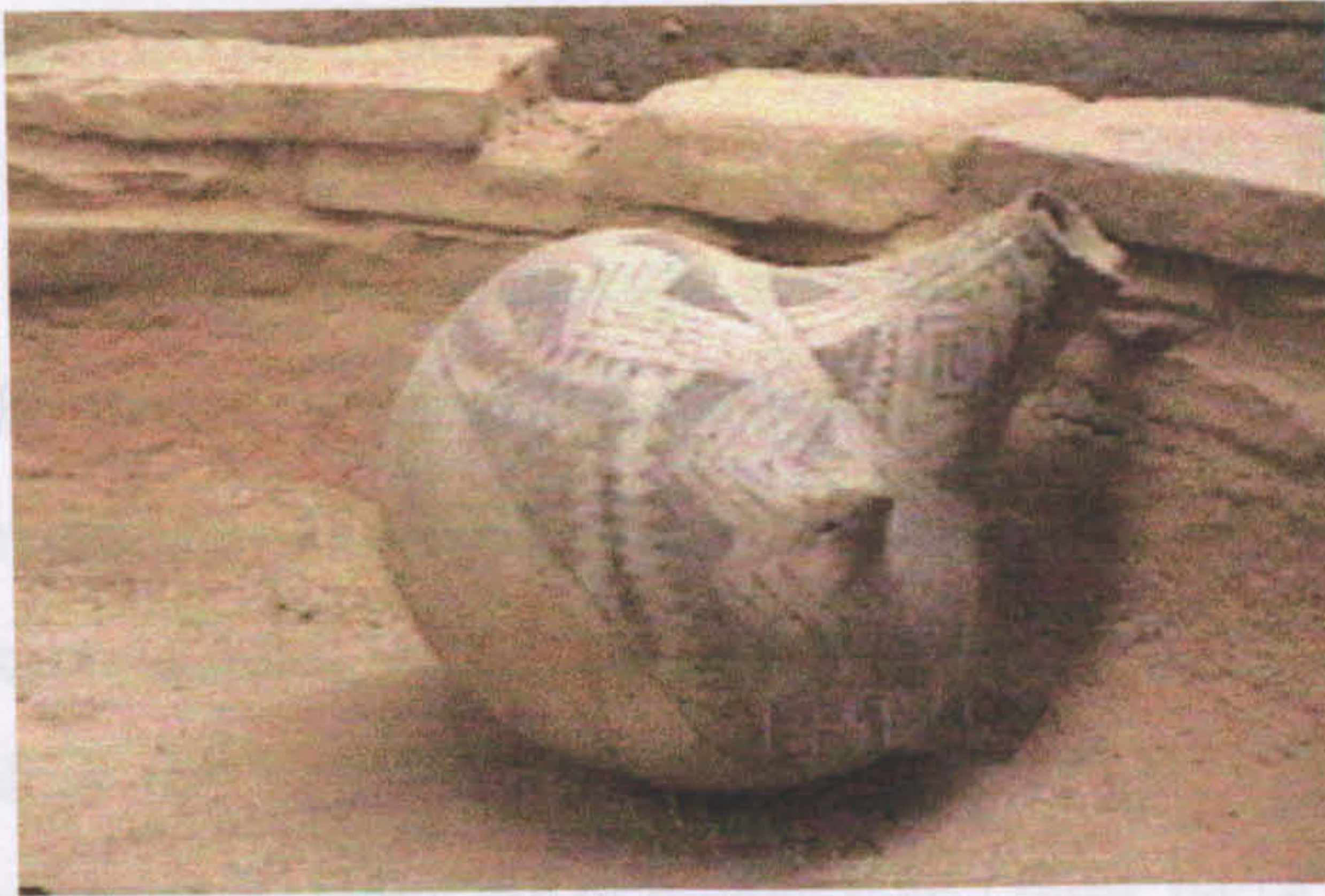


Figure: 8-1, in contrast to Medina art that was inspired by desert mono-pallet colours, on the right, Asiraian historic architecture, (left), celebrated various warm colours, mainly green and red which is inspired by the rich nature of Asir's landscape.

Although O'Keefe was very fascinated by the desert's people austerity and mysticism (Robinson 1985), as she once I saw around the uniquely modern interpretations of the agreement with expressed in, for example "Artists are color things like Pueblo I AD 800.

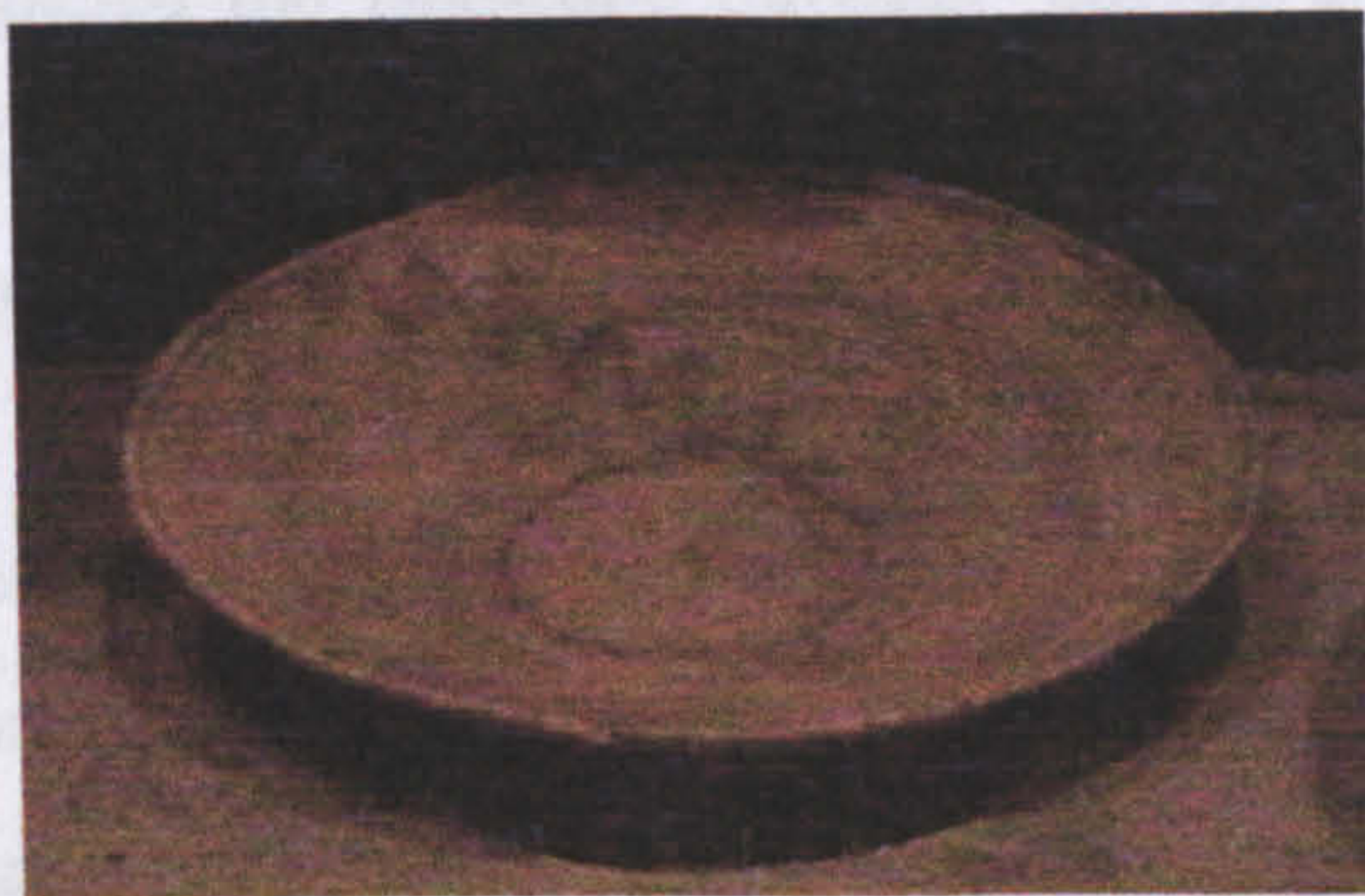


Pueblo I AD 800.

We also find such careful selection of colors into color schemes infinite in the modern O'Keefe's modern reflections of the paintings of the landscape and the legible, for they depicted the landscape and personal experiences (McCracken 1973), which they found did not. When modern schools were or acting as a dominant aesthetic value of nature." Anglo-Americans, but between "simplicity. In contrast to the mind (Now 1970) settings that desert. Similar to



Mimbres ceramics, AD 1000-1150.



Anasazi, North-east Arizona AD 500-700

Figure: 8-2, Native Americans in the desert of the Southwest show a similar attitude toward colours in their works of art as Medina people did.

Although O'Keeffe was very fascinated by the desert's people austerity and mysticism (Robinson 1989), as she once said talking about Albuquerque in New Mexico: 'you can not imagine the beauty I saw around there, it was too good to describe' (Pollitzer 1988), most of her work demonstrated a uniquely modern style that borrowed little from the landscape but demonstrated more of her interpretation of the desert. We find in her words explaining the '*blue mountain*' (figure 8-3) a fair agreement with traditional Anglo-American definition and understanding of art. This idea is expressed in, for example, Jules Feiffer's quote that reads

'Artists can colour the sky red because they know it's blue. Those of us who aren't artists must colour things the way they really are or people might think we're stupid.'

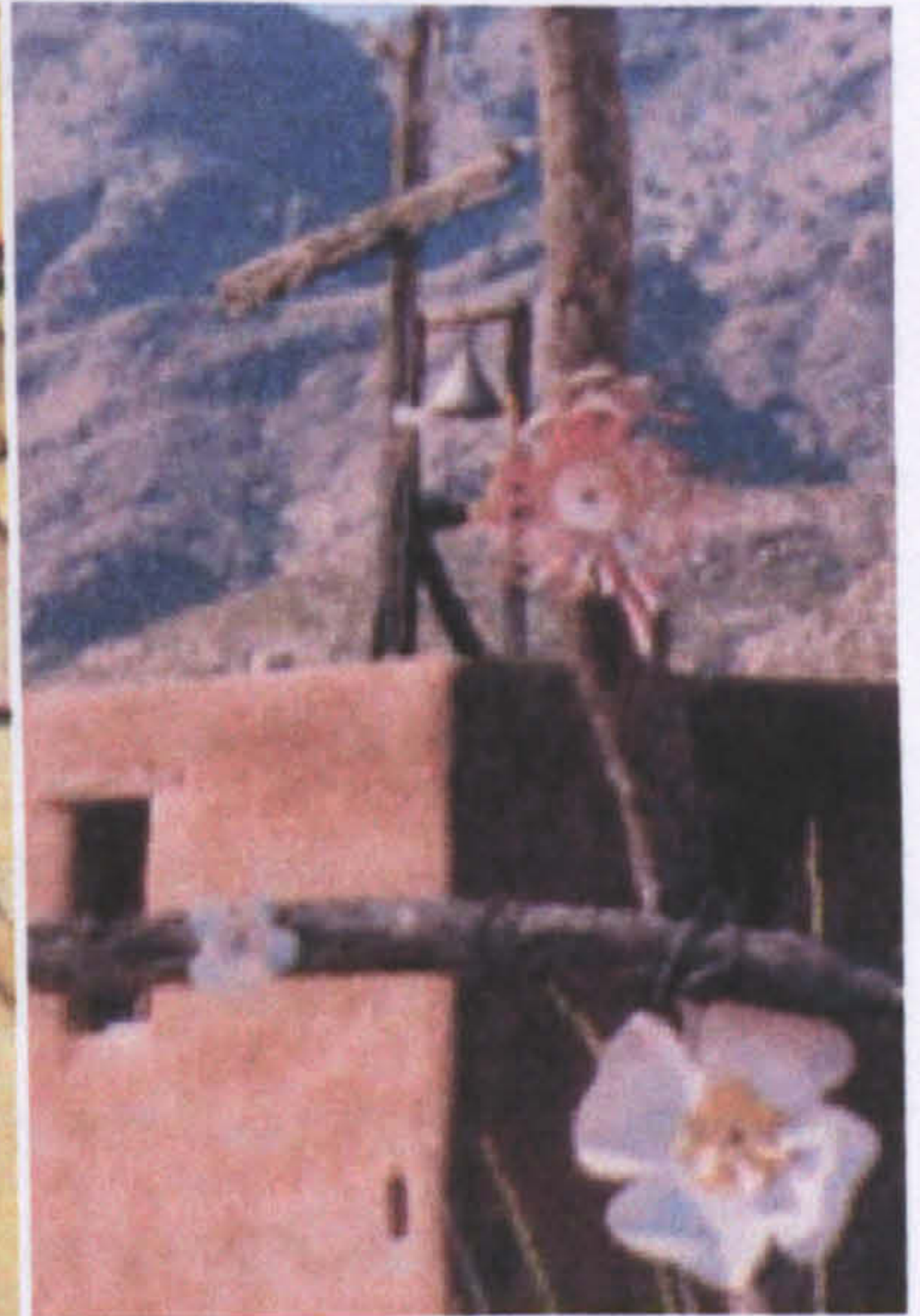
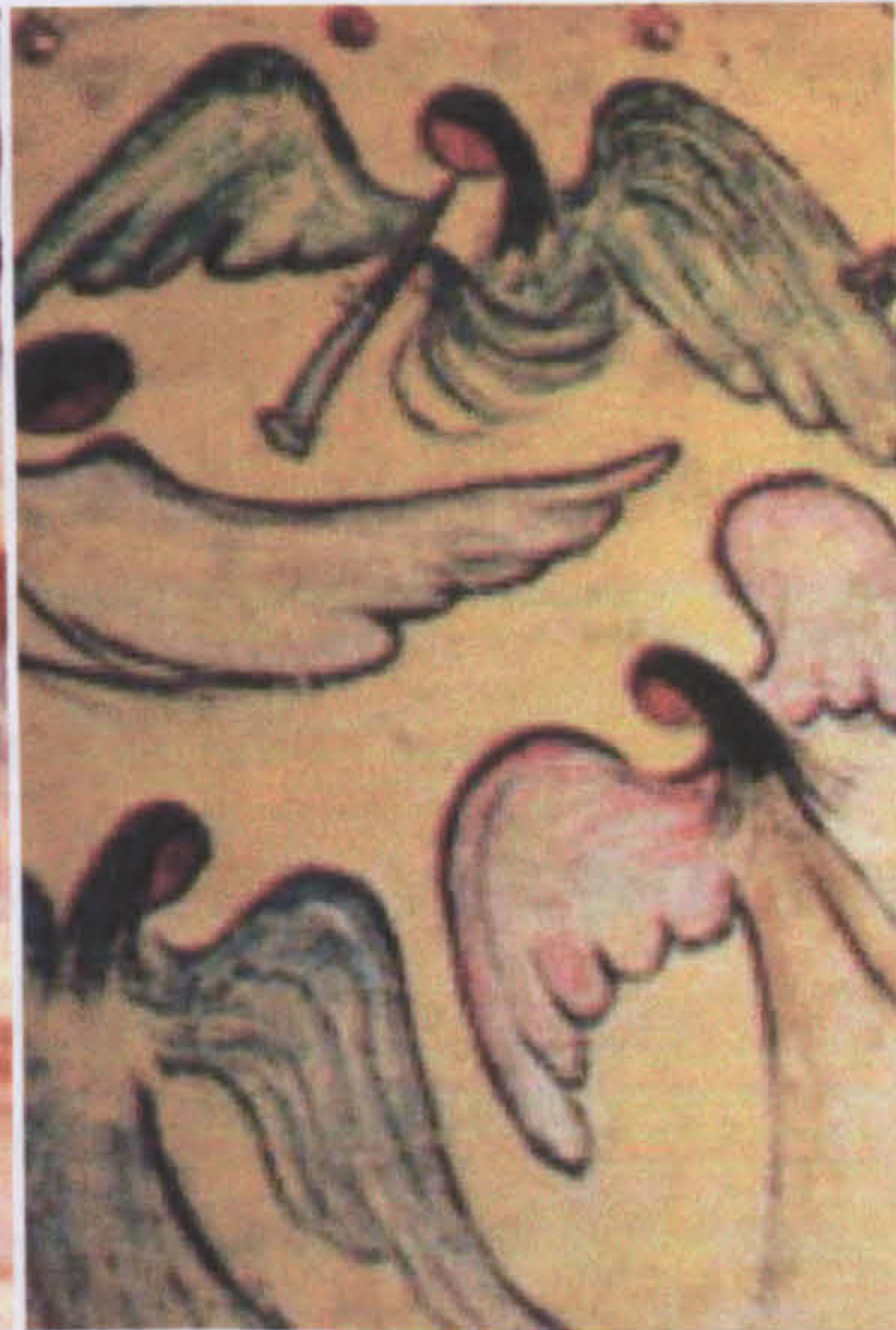
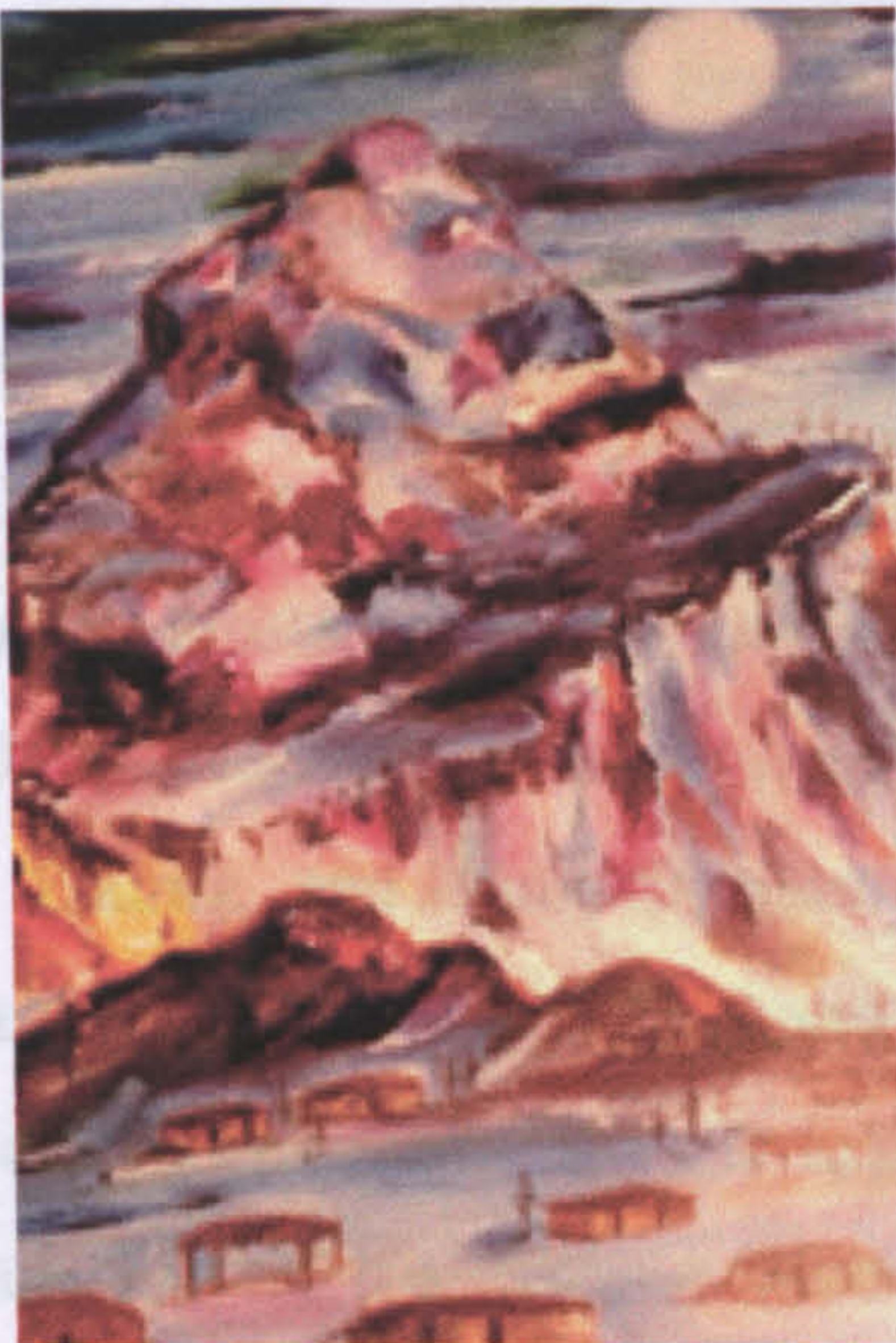
We also find such notions in modern critics of art such as Meining in his comments on the natural landscape. He believed that each artistic expression of a landscape, i.e. a painting, 'represents a careful selection by the artist. But the 'purest' form of landscape as an aesthetic object is a more comprehensive abstraction in which all specific forms are dissolved into the basic language of art: into colour, texture, mass line, position, symmetry, balance, tension. The versions and variations are infinite in this most individualistic view of landscape.' Henry Ward Beecher (1813-1887) confirms O'Keeffe's mode of thought, as an Anglo-American artist, where he declare art as a set of reflections of the soul. Agreement between the traditional legacy of art and early Anglo-Americans' paintings of the desert made these paintings a transitional medium that conveyed the desert landscape into the American psyche. Paintings of O'keeffe's, De Grazia's were perceptually legible, for they depicted the landscape through cultural and personal experiences (McCracken 1973), which Anglo Americans could understand, rather than the actual physical landscape, which they found difficult to appreciate (figure 8-3).

When laymen superficially conceive desert landscapes (Beherns 1993), the paintings of the desert school were on one hand working as generators of social and cultural values and on the other hand acting as a language understood by the public. Artists like De Grazia, for example, who created a distinctive character for his work (McCracken 1973), was able to establish in American culture the aesthetic value of 'simplicity,' or what Randall Henderson (1968) called the 'humility of desert nature.' Anglo Americans who moved from the temperate North, depicted in art as sublime and sovereign, had no aesthetic value for 'simplicity.' De Grazia, however, established a relationship between 'simplicity and beauty' in his works through social and religious values and social rituals. In contrast to O'Keeffe's works that interpreted desert landscape through Anglo-American state of mind (Rose 1986), in most De Grazia's works, the desert landscape was revealed through social settings that depicted religious rituals and humanitarian sufferings as well as welfare (figure 8-4). Similar to



light, air, rocks, wood, cacti, etc., and his beliefs that were clearly visible, and the wild fires within the vicinity of the gallery coincide with what one has seen of the gallery (figure 8-4).

Figure: 8-3, top left and right, 'desert flower' and 'blue mountain' by Georgia O'Keeffe, bottom, 'Bringing in the Sheep' by De Grazia.



light and air, rocks, wood, cacti, etc., and his beliefs that were clearly visible, and the wild fires within the vicinity of the gallery coincide with what one has seen of the gallery (figure 8-4).

Figure: 8-4, top, De Grazia's paintings of the mountain, mural, part of the outdoor exhibit, bottom, Siera Diablo Peak by Everett Spruce

Josef Muench's photographs saw Biblical simplicity in the Navajos (Cooper 1974), and biblical motives dominated most De Grazia's works. This approach developed a new understanding of beauty in Anglo Americans' perception as he connected the unfamiliar, i.e. the desert, with the familiar, i.e. Christian rituals and representations of the Messiah. One of the prominent approaches De Grazia set up is the cultural adaptation of mountains as a social space, which seemed to have been echoed in other artists' works like Everett Spruce. The garden around his house in Chapel, (which became a 'Gallery Under the Sun' after his death), is an outdoor display of active-exhibits that creatively address desert natural forces like wind, light, and materials (rocks, wood, cacti fronds, etc.). The overall landscape of the place exclusively expresses his beliefs that were clearly represented in his work. The Messiah, his grave, the bells, and the wind fans within the vicinity of the garden create a rich desert-religious atmosphere that powerfully coincide with what one has seen of reflections of De Grazia's works in the indoor part of the gallery (figure 8-4).

Maynard Dixon was one of the rare artists of that time who combined words and art in his interpretation of desert (Ainsworth 1960). The 'simplicity' he sought in his life (Ainsworth 1960), was apparent in his work. He shared with De Grazia the aim of rooting a cultural acceptance of austerity in American perception of natural beauty. Although he spent most of his life learning from the desert' natural and cultural life, in contrast to De Grazia's trend and others who documented humans' interactions with the desert like Clyde Forsythe, J. Bond Francisco, Nicolai Fechin, Carl Eytel, and Marjorie Reed (figure 8-5), Dixon's works were solely dedicated to the natural desert landscape⁴. Most of Dixon's works celebrated fauna within landforms, whether mountains and hills like 'Elements of Nevada' or flat plain landscapes like 'Fields of Tocquerville' (figure 8-6). Many Arizonan artists were artistically influenced by such landscape settings and embraced a similar trends of Maynard Dixon. Some of those artists included: John Hilton, Bill Bender, Orpha Klinker, Paul Lauritz, and Jimmy Swinnerton (figure 8-7), and others who explored the terrain through their paintings like Marbury Hill, Ancel Eunn (figure 8-8). Dixon had also emphasised the low diversity of colours in desert. This is apparent in most of his paintings, which are dominated by mono-colours nature, e.g. 'Grease Wood.' On the other hand, Dixon also celebrated the phenomenal colouring of natural events like the yellow of dryness, twilight reflections on mountains, light and shadow drawn by partly cloudy sky, etc. Another interest of artistic investigation Dixon embraced was on desert adobe houses, which was a common motif at the 1930s. He celebrated light in these paintings in a way that address forms and lines of the architecture rather than the surrounding

⁴ There are some exceptional examples of Dixon's works that represented his interest in painting cultural landscape like 'Apache Women,' the famed 'Destination Here,' 'Como Se Pasa La Vida,' etc.



Figure: 8-5, works of: 1) Clyde Forsythe., 2) Bond Francisco, 3) Nicolai Fechin, and 4) Marjorie Reed

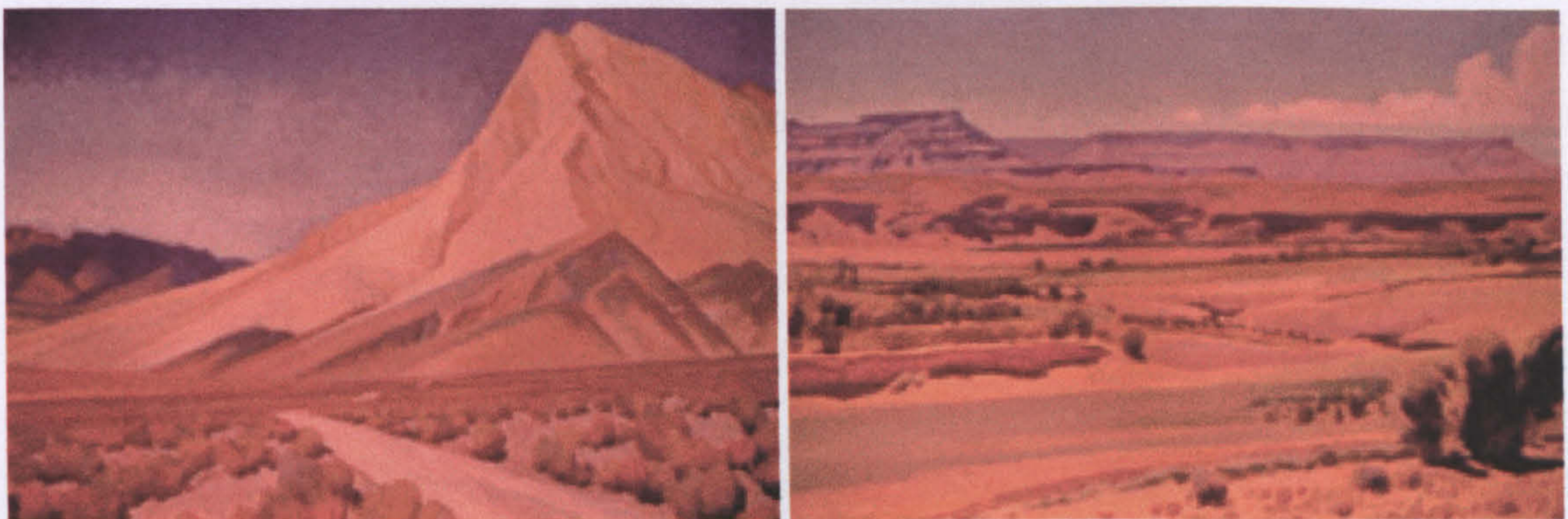


Figure: 8-6, 'Elements of Nevada' left, and 'Fields of Tocquerville' by Mynard Dixon.

landscape as others did, e.g. Al Brouillette. He differed also from O'Keeffe's paintings in this field, though he followed a similar interest in representing forms, she with her provocative, western-feminist pallet was able to reinforce a unique style (figure 8-9).

By the end of the 19th century, the Anglo-American artists had also recognised the melancholic feelings of 'geological residuals' (mountains, mesas, vistas of sands, etc.) rather than previously responding to pensive reflections of European setting of ruins set in the midst of the landscape (Tuan 1964). Around the same time, the natural and manmade environments were equally valued in term of historic recognition (Budiansky 1995). In the Southwest, mountains and missions became alike as they shared the image of ruins generated by the natural forces of the



Figure: 8-7, works of 1) Bill Bender, 2) Orpha Klinker, 3) Paul Lauritz, and 4) Jimmy Swinnerton.

Figure 8-8, works of Myriad Dixon, top left

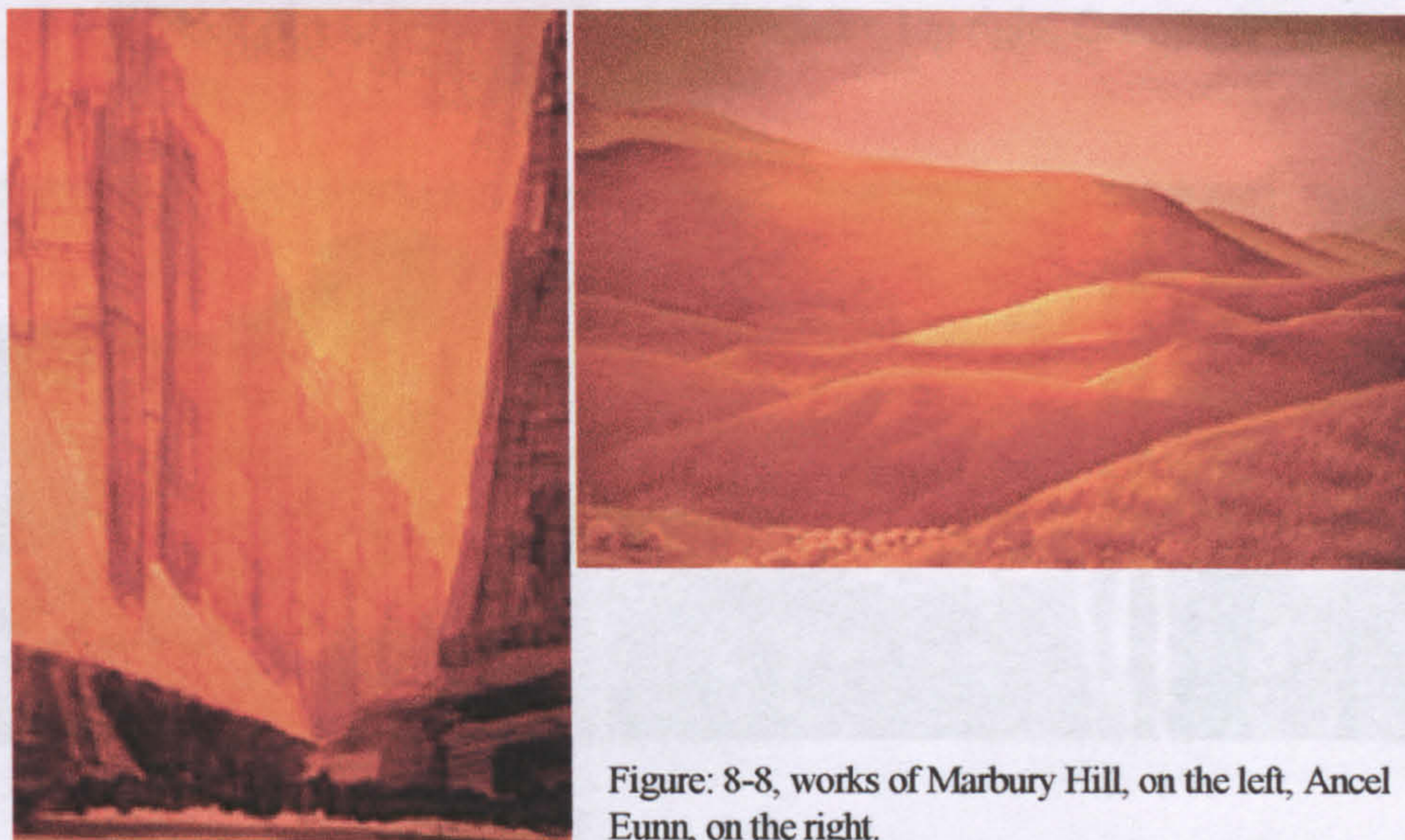
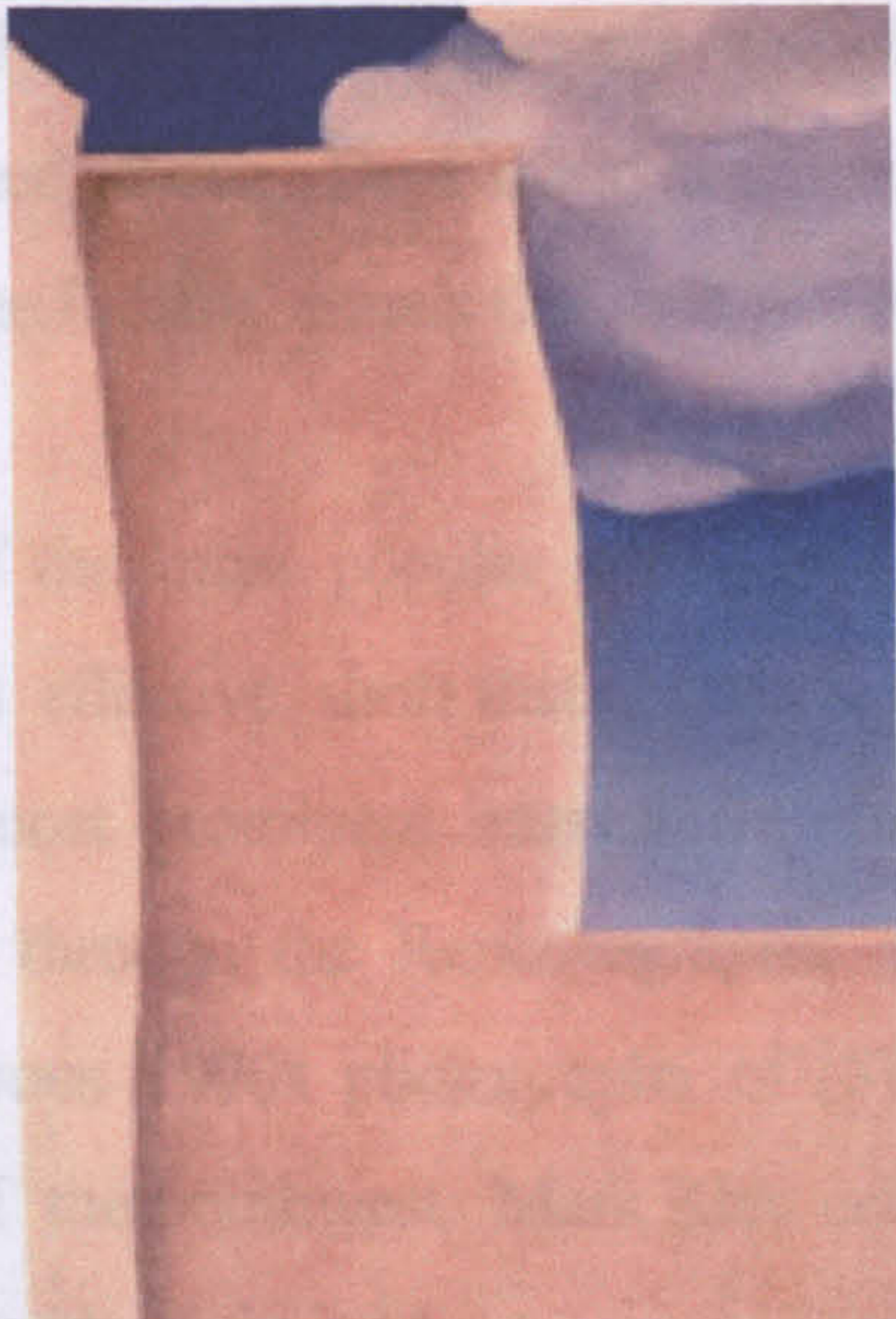
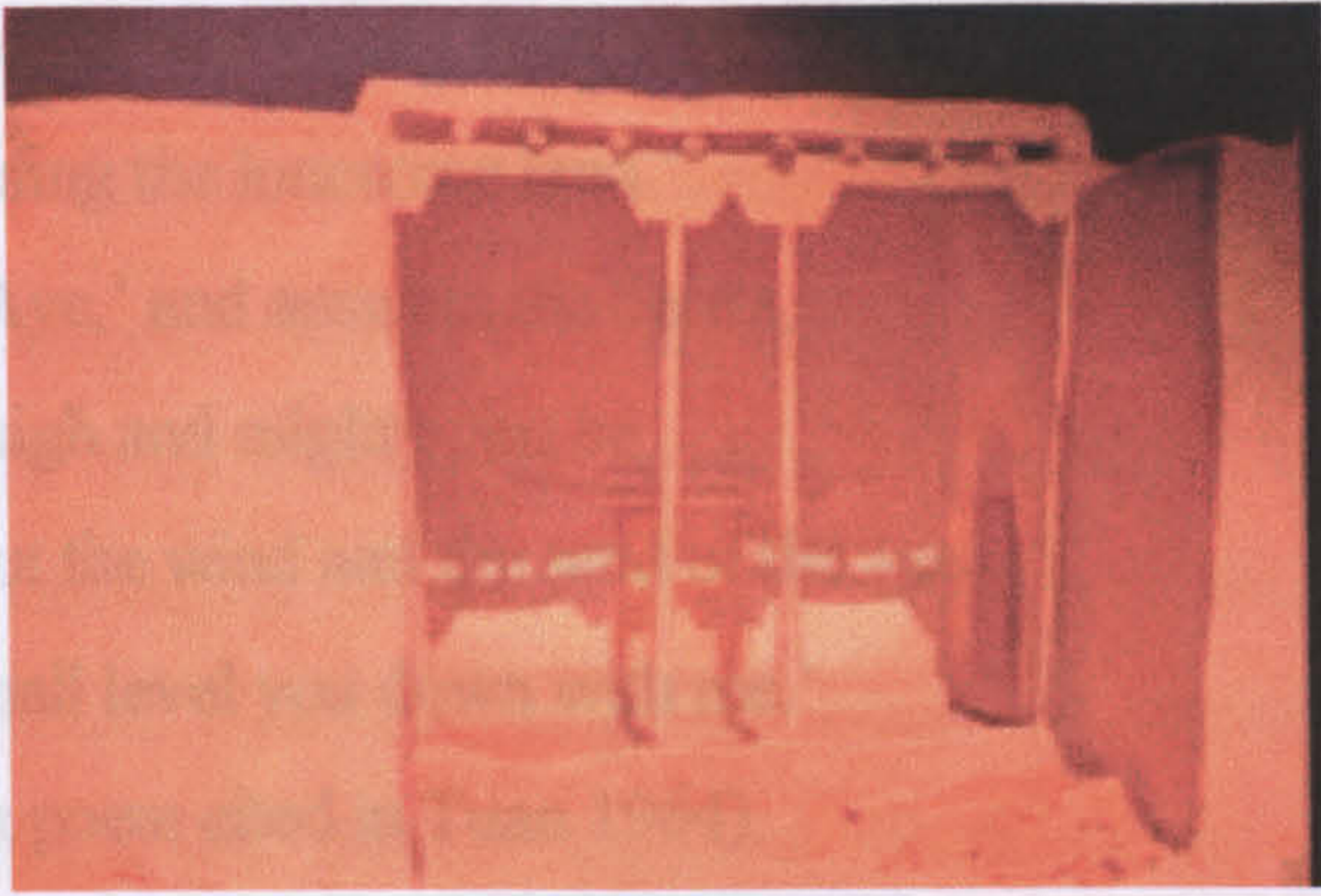


Figure: 8-8, works of Marbury Hill, on the left, Ancel Eunn, on the right.

desert landscape (Tuan 1964). The nature of their material and the similar response they showed to erosion, the housing of the Indians' rituals, and the sentiments they provoked inspired prose and poetry which in most cases resonate the early English celebration of ruins in gardens. Henry George Weiss wrote a dialogue, through which he revealed a similar sense of the competition between erosion and structure that one might also invoke by a crumbling castle in the English landscape:

'impregnable,' say the mountains,
 'forever and ever we stand,



... of art that adopted desert images in artistic
 ... his paintings had revealed the image of desert
 ... in both, mountains and missions (figure 8-4).
 ... of the Southwest during the 20th century,
 ... humans' abuse of the desert landscape (figure 8-
 ... desert is documenting the change in the South-
 ... Survey Project (Limerick and Southall 1992).

Figure: 8-9, works of Mynard Dixon, top left
 Al Brouillette, top right, Georgia O'Keeffe,
 bottom.



... aesthetic value they was prized of the desert.
 ... temporary paintings and relief structures with
 ... a superficial similarity, but to present the
 ... of the artist and witness. Josef Muench (1904-
 ... can taste of the desert through his explorative
 ... highways

Figure: 8-10, 'you and me,' 'failed
 subdivision,' and 'ruined landscape' by
 Mark Klett.

* One of his pictures, a photograph of a snowcapped Sequoia redwood tree in Kings Canyon National Park, was one of 117 photos of Earth's landscape that was sent to the unmanned Voyager spacecraft (Gibby 1998).

lording it over the desert,
ruling the lonesome land.’
‘Aye,’ and answers the desert,
‘high and mighty you be,
but the wind and the sand of the ages
shall level you down with me.’

(a poem cited in Tuan 1964).

Artists had invested in this field to create new forms of art that adapted desert images in artistic works. As explained above, De Grazia, in most of his paintings had revealed the image of desert landscape through the Indians’ rituals that took place in both, mountains and missions (figure 8-4).

Mark Klett, one of the most popular photographers of the Southwest during the 20th century, produced numerous effective shots that gesture to humans’ abuse of the desert landscape (figure 8-10). One of his most prominent interests in the desert is documenting the change in the Southwestern landscape through the Rephotographic Survey Project (Limerick and Southall 1992). Through his numerous 1970s photographs of 1870s vantage points, Klett recorded changes in the desert landscape of the Southwest. Mark Klett celebrated desert natural forces such as erosion and decay in his photography as he said:

‘the desert, including the barren parts and (I would even say) especially those, appeals to me. I see in it purity, timelessness, a generosity of mind and spirit. The bleached skull in the desert, far from evoking the odour of death suggests something clean and noble that may crumble into dust but is exempt from the humiliation of decay.’

The partnership between the artist Rita Deanin Abbey and the geologist G. William Fiero was provoked by the ‘overpowering and elusive’ desert of the Southwest. Their group work revealed the book titled ‘Art and Geology: Expressive Aspects of the Desert’ in which paintings and images are accompanied by text that transcribe the geologic aesthetic value they interpreted of the desert. The book, as its authors see it, ‘juxtaposes contemporary paintings and relief structures with photographs of geological phenomena, not to demonstrate a superficial similarity, but to present the closeness of the creative visions and experiences of the artist and scientist.’ Josef Muench (1904-1998) is another photographer who tutored the American taste of the desert through his explorative art of photography, (nearly one thousand photographs⁵), published mainly in Arizona Highways magazine.

⁵ One of his pictures, a photograph of a snow-capped Sequoia redwood taken in Kings Canyon National Park, was one of 117 photos of Earth’s landscape sent into space on the unmanned Voyager spacecraft’ (Radley 1998).

In contrast to the 'Mauve Desert,' (figure 8-11), the film 'Red Desert,'⁶ produced in 1963, by Michelangelo Antonioni, who does not consider himself a painter, but 'a filmmaker who paint the desert, 'was a motif and a source of inspiration for manifold themes in the idea of the film. One of the themes, as Angela Vacche (1996) highlighted, was connected with the imaginative potential of emptiness, openness, virginity, uncharted and unexplored territories of creativity. Antonino found in desert, the genuine studio in which he can unfold his paintings in series of animated events, arranged actors, objects, colours and shots. The 'cowboys' of the Southwest was fantasised through cinematography, advertisement, and recreational attractions (figure 8-12). The desert landscape setting of the cowboys was transferred through these media to the public in which the desert became part of an amusing scene rather than a harsh threatening environment. In other words, the 'cowboy' in various forms of entertainment of the sixties and the seventies had somehow brought a new image of the desert landscape to the American perception that somehow familiarised the public's taste with the desert.

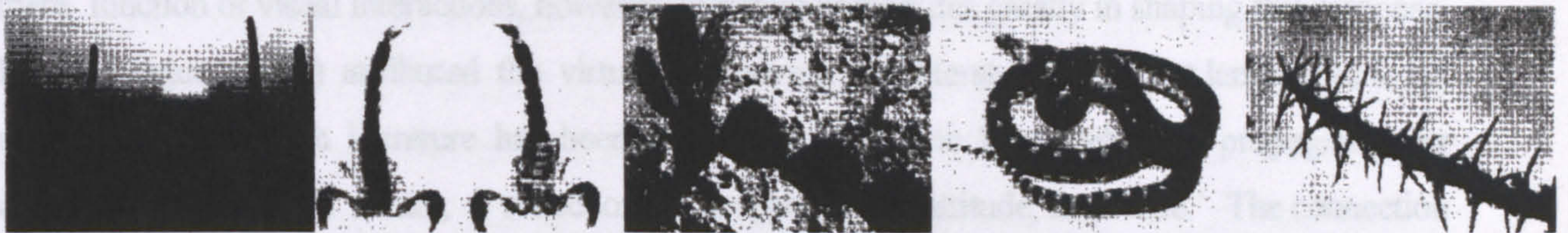


Figure: 8-11, 'Mauve Desert' is a film/video translation by Adriene Jenik of Nicole Brossard's experimental novel of the same name, in which the desert was addressed in its fearful facet. Nicole Brossard is a celebrated Quebecoise writer.



Figure: 8-12, the cowboy legends were a staring focus of cinematography during the early 20th century.

⁶ 'the film is primarily about the clash of nature and culture, with the industries eating the landscape away' (Vacche 1996)

In short, the revolutionary change in Anglo-Americans' perception toward the desert was based on the assumptions that 'the appreciation of landscapes is a learned response, one that requires a fairly sophisticated iconography' as Teague suggested (1997). And if as John Berger (1972), declared that 'the way we see things is affected by what we know or what we believe' then it seems that what Anglo-Americans needed to gain is what Nelson (1977) called 'visual literacy.' This assumption acknowledged that knowledge needed to be gained and art needed to be adapted to tutor the talent and the eye of the Anglo-Americans how to respond intuitively and positively to their desert landscape. This task was carried out by artists of the early twentieth century, the first who discovered the beauty of the desert.

8.6.3. The role of literature in tutoring the public's perception of desert.

Joseph Meeker (1974) stressed that literature has a tremendous influence on human behaviour toward their natural environment and must be considered one of the fields that 'should be examined carefully and honestly.' William Hartmann (1989) affirmed that the response to a landscape is not a mere function of visual interactions, however, literature contributes greatly in shaping this response. David Teague (1997) attributed the virtue of studying the literature of desert landscapes to his assumption that 'such literature has been and will continue to be a vehicle of propagating our culture's beliefs about nature, a reflection of the perception, attitude, and value.' The connection between literature and any designed landscape reveals cultural understanding of the natural landscape of a particular society. The study of documented and undocumented patterns of behaviour, traditions, ideas and even imaginative forms of literature like novels, poems, prose, and narratives is a fruitful source of data. Such data sustains, as Mary Austin (1969) noted, a unique heritage of ideologies and philosophical stands against particular values in a particular culture.

In the Southwest, the other reason Anglo Americans failed to establish a positive perception toward the desert landscapes was language. After all, this landscape had naturally contradicted their basic and familiar vocabulary of perception (Austin 1969). Even if the early explorers had positively perceived their new discoveries in the southwest, they would have found their vocabularies incompatible in a language initially established in a green landscape of rivers and forests. 'The desert demanded' as Teague (1997) suggested 'a new imaginative, aesthetic, and literary vocabulary because it looked like no place the citizens of the United States had seen before and it invariably struck them with wonder.'

In most of travellers' writings, desert was rejected mentally and physically. Even enthusiastic early American travellers who sought aesthetic discoveries in American deserts like Susan Shelby Magoffin (1846) and William Manly (1849), swiftly changed their perception to the opposite even after brief actual experiences in desert landscapes. After escaping Death Valley, William Manly, for example, wrote in 1894:

'We were out of the dreadful sands and shadows of Death Valley, its exhausting phantoms, its salty columns, bitter lakes and wild, dreary sunken desolation. If the waves of the sea could flow in and cover its barren nakedness, as we now know they might if a few sandy barriers were swept away it would be indeed a blessing for in it there is naught of good comfort or satisfaction, but ever in the minds those who braved its heat and sands, a thought of a horrid Charnel house, a [corner of] the earth so dreary that it requires an exercise of strongest faith to believe that the great Creator ever smiled upon it as a portion of his work and pronounced it 'Very good.'

In the writings of Washington Irving (1835), the desert landscapes with its inhabitants were condemned. He proclaimed an aggressive dislike and refusal toward the idea that desert could be part of civilisation. Irving expressed his attitude toward the desert on the basis of harshness and difficulty of civilised life, yet he did not deny the possibility of saving the land for future use to serve certain aspects of urban and political demands of the country. Josiah Gregg in 1830s and 1840s supported what Irving first pronounced as a landscape that 'produce manliness, simplicity and self-dependence most in unison with our political institutions' (Gregg 1844). However, he still had found lots of difficulties in coping with bareness, dryness and colourlessness of desert landscape. Nevertheless, Gregg was the one who initiated the first steps toward publicising a new visual attitude toward desert. In later times, John Wesley Powell and Clarence Dutton had seen the desert of North America with the same eye as Gregg, which was described by Barbara Novak (Teague 1997) as the 'older sublime.' It was the first level of aesthetic reaction toward desert in North America that did not involve interaction and embrace, but, remote scenic recognition of its vast views. These writings had publicised and therefore established a powerful rejection of desert in the mind of the public of north America. It broadened the mental and psychological gap between the north and south and between the east and west of the country.

After long history of reluctance to inhabit desert landscapes, Anglo Americans eventually overcame the physical and psychological obstacle. The two practical tools as Teague (1997) stated were 'to imaginatively reinvent their language for use in the desert, to practically reinventing the face of the

desert to their language' and to divert the direction of the appreciation toward the 'land's potential utility.'

The only available writings on deserts in the 19th and early 20th century were the ones of the early travellers and explorers who had not yet discovered emblems of the beauty of desert and therefore had not composed the appreciative language. Personal experiences of residents and visitors with the Southwest were another basic reference of early Americans' perceptions of desert landscapes. Zube (1982) listed names of early men of Arizona whose journals, diaries, logs, reminiscences, reports of journeys and daily activities, and letters had contributed a great deal in capturing the Arizonians' perception toward desert landscapes during the second half of the nineteenth century. These names included J. Ross Browne, who was a traveller and a writer. His report on his horseback journey, '*Adventures in Apache Land*,' was reprinted several times in 1870. Joseph Pratt Allyn and his letters to the east were published through the 'Connecticut' newspaper; John H. Marion, who wrote about his journey around Arizona in 1870 in the 'Arizona' newspaper. Other well known journalists of the time also writing on desert were George O. Hand, Edward Wilson, J. Knox Corbett, Samuel Peter Heintzelman, and George W. Parsons. In these writings we find worries about dangerous desert creatures, motivations toward the future, and remarkable acceptance of scenic arid landscape with a clear atmosphere and sunny climate. The movement of these ideas and information among the small social groups at that time enabled the formation of heterogeneous insights toward the landscape. New comers were now informed some times before coming to the area about valuable amenities and what they might expect to find in the area.

Nature writers like Mary Austin, Joseph Wood Krutch, Edward Abbey, etc. had established the preliminary semantic appreciation of the beauty of arid lands of North America. John Muir, in his 'The Grand Canyon,' for example, Said:

'It seems a gigantic statement for even nature to make, all in one mighty stone word, apprehended at once like a burst of light, celestial colour its natural vesture coming in glory to mind and heart as to a home prepared for it from the very beginning. Wildness so Godful, cosmic, primeval, bestows a new sense of the earth's beauty and size.'

However, even the purposeful attitude early settlers developed toward the South-western desert was debased in modern poetry. Mary Cahill (1968) in her 'The Desert Speaks' wrote:

I am the desert. They say that I am cruel,
For greedy men who wandered, unprepared,
In my domain, seeking hidden treasures,
Found Death their only booty.

My pitying dust now hides their bleaching bones.

Traditional feelings toward the desert were reinterpreted in the South-western literature in a way that reinvented the desert in the American emotions. Reading through what Cynthia Farah (1988) surveyed of how desert influenced writings and works of fifty South-western American writers is conclusive that the desert landscape had been a great inspiration in some way or another to those writers. The first statement Edward Abbey wrote in his 'Desert Solitaire,' reads: 'this is the most beautiful place on earth,' gesturing to the Silkrock desert around his town, Moab in Utah. His book marvels at seasonal phenomena within the desert. Ainsworths (1960) wrote the following about desert:

This is not a place of horror and thirst alone. Its fierce sun beating down upon the heated sands is not merely pitiless. The great winds sweeping across its vast face are not completely merciless. Instead, this desert has a profound meaning for each human heart. Its heat and its thirst and its winds are tremendous and vital because the desert is sincere. This air is the purest on earth. This heat warms the vitals of creation. These winds bespeak the power of Nature.'

Mary Austin in 1923 wrote on the beauty of desert landscape of Arizona:

So much of Arizona is by its natural constitution conditioned to be always beautiful, and to serve only by its beauty, that we cannot suppose that it will fail ultimately to produce some equivalent uniqueness among its inhabitants' (Austin 1992).

In many writings, desert landscape was admired as a 'garden' in its beauty. Frances L Hamilton (1993) wrote:

'we may pause for a moment to drink in the loveliness of the scene before us. our eyes are open and we see for the first time the wealth of beauty that comprises our garden.'

In the forward of this book (The Desert Garden), Dorothy Hamilton said;

How can we call desert wild flowers really 'wild' when nearly every one is a relative of some beautiful, cultivated plant which languishes behind garden walls and longs enviously to escape its prison and flourish with its wild brother in the 'Desert Garden.'

The North American deserts were also categorised not only geographically but also from an aesthetic point of view transcribed in literature. Paul Johnson (1972) divided his book 'The Beautiful Southwest' into versions of wild deserts and cultured deserts. He wrote on the Sonoran desert, for example: 'a land of haunting beauty, limitless horizons, home of giant cactus, bright carpets of wildflowers, haven for wandering dunes, . . . the Sonoran desert exerts a pull that draws men to its hypnotic beauty.' Other writings, like 'Walk in Beauty: Meditations from the Desert' (1974), fancied the combination between images of desert landscapes (by Gregory Fryzel) and interpretative writings (by Murray Bodo) that delineate the landscape artistically and transcribe personal feelings and experiences of various desert landscapes and natural phenomena. Such

writing style has been found to have contributed greatly in tutoring lay people's faculty of perception and language of admiration of desert landscape.

Another attitude to writing on desert's aesthetics was the one of Jean Baudrillard (1988). Baudrillard found beauty in the desert's harsh realities in a way that Tuan (1993) called 'worshipful admiration.' His advice was to enhance desert's actual traits rather than forging visionary attitude in extolling desert's emblems of beauty. Ironically, in his writing one might find terms like 'dryness, sterility, no end and no centre, inhuman, uncultured, a challenge to the natural economy of value, etc., which are used not to debase desert, but highlight the issue that to admire the desert one should appreciate its factual and phenomenal realities. In contrast to this mode of writing he wrote describing change in desert:

'The sunsets are giant rainbows lasting for an hour. The seasons here make no sense: in the morning it is spring, at noon it is summer, and the desert nights are cold without it ever being winter. It is a kind of suspended eternity in which the year is renewed daily, with the guarantee that it will be like this each day, that every evening will be that rainbow of all the colours of the spectrum in which light, after having reigned all day long in its invisible form, in the evening fragments into all the nuances of colour that make it up, before it finally disappears.'

8.6.4. The role of horticulture and gardening in tutoring the Americans' perception of desert.

From the time America was discovered by Europeans until the mid-1890s, Americans acquired no aesthetic appreciation for the southern desert of North America. To the newly constituted nation, deserts of the south 'were incomprehensible to the collective imagination of the civilised portion of the country.' The reason was not only aesthetic aspects, but also as Teague (1997) alleged 'they were places where accustomed modes of geography, agriculture, industry, and commerce did not obtain.' Ervin Zube (1982) highlighted also that the American symbols of wilderness, axe, pastoral scenic, and garden were the predominant culture that governed the American perception of the landscape (Tuan 1993; Zube 1982). The south with its unfamiliar phytogeographical setting representing none of the American symbols that for a long history had defined Americans' relationship with nature. On the other hand, the minimal dependence of Tucson's economy on agriculture and cattle raising, for example, resulted in less contact between man and the natural environment (Parker 1948). This had sustained a forty year delay in the scientific discovery of the area compared to the North which peaked during the last part of the nineteenth century (Budiansky 1995). By the turn of the twentieth century, the traditionally vilified land of the Southwest had

gained the curious attention of the nation. Henry Steele (cited in Teague 1997) suggested this change ‘witnessed, among other things, the perceived closing of their western frontier, the emergence of the former colonies as an international power, and the rise of American multinational corporations.’ Americans gradually broke through the Euro-centric culture that historically ignored other cultures such as the indigenous cultures who were familiar with the desert.

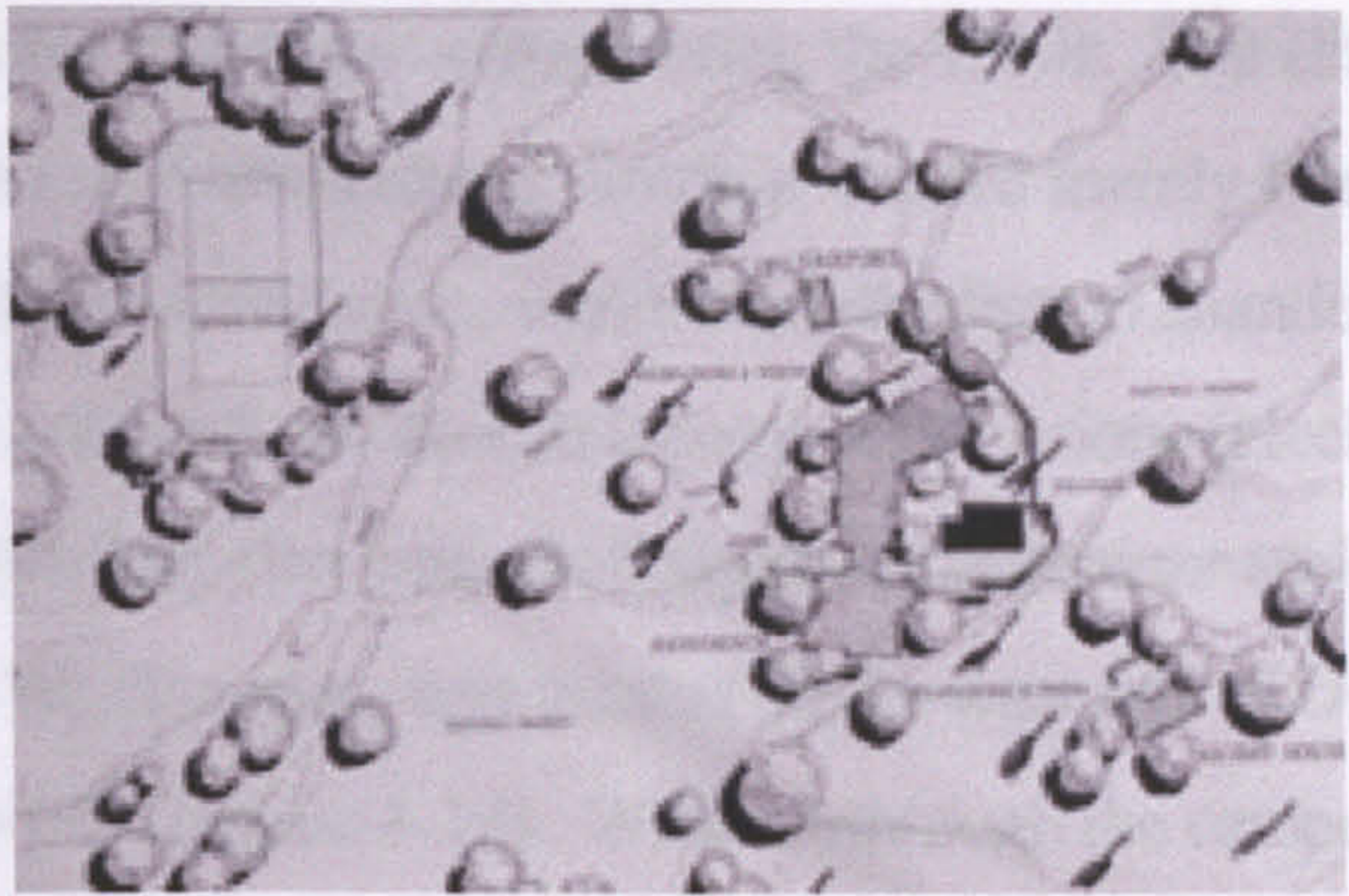
The rationalisation of planting desert landscape into American desert cities began mainly by a disconnection with the traditional western model of gardens. The disconnection was not only a matter of economic considerations, but perhaps more importantly a response to a revolutionary change of taste. In 1952, Mark Klett, the famed photographer of the Southwest, titled his book that had photographically documented the desert of the Southwest, ‘Traces of Eden: Travels in the Desert Southwest.’ Horticulturists had found in the south a new land for exploration. Journals like, ‘Desert Plant Life,’ first published in 1929 and ‘Cactus and Succulent Journal’ was first published in 1928 as a public magazine that aimed to teach the public how to diminish the gap between reality, i.e. the arid landscape, and the inherited appreciative values toward the natural landscape, i.e. Anglo American culture. Reid Moran (1993) noted the degree to which people liked desert plants led to the success of many desert publications like ‘Desert Plant Life’ whose object was ‘to get the information about cacti and other succulent plants from those who had it to those who wanted it, making the process as pleasant as possible to both.’ ‘The Desert Magazine’ was another publication that as Carl Dentzel noted, was ‘an informative and interpretative publication that has been influential in distributing valuable information concerning all aspects of the desert’ (Ainsworth 1960). Among the means ‘Cactus and Succulent Journal’ utilised to achieve this aim was the use of American’s most favourite pursuit of all: ‘collection.’ Collecting cactus and rare desert plants of arid landscape gradually grew, and other societies and publications in the area followed similar programs to promote knowledge in this field. The result was cactus collecting which is now a big business not only in Arizona. Other kind of publications was concerned with providing desert-gardening guide such as ‘Desert Landscaping’ for George Brookbank (1992). Such books gave, those who enjoy maintaining their gardens by themselves, an easy to use step-by-step process to ‘start and maintain a healthy landscape’ in desert landscapes of the Southwest (Brookbank 1992).

Societies that are within the circle of desert landscape also produced public educational material that helped people understand the beauty of arid landscape by giving advice on private gardening with dessert native plants. In the ‘Introduction the Arizona Native Plant Society’ its objective highlighted by saying, ‘the Arizona Native Plant Society continues its goal of promoting the use of native and arid-adapted plants in landscapes’ (Arizona Native Plant Society 1992).

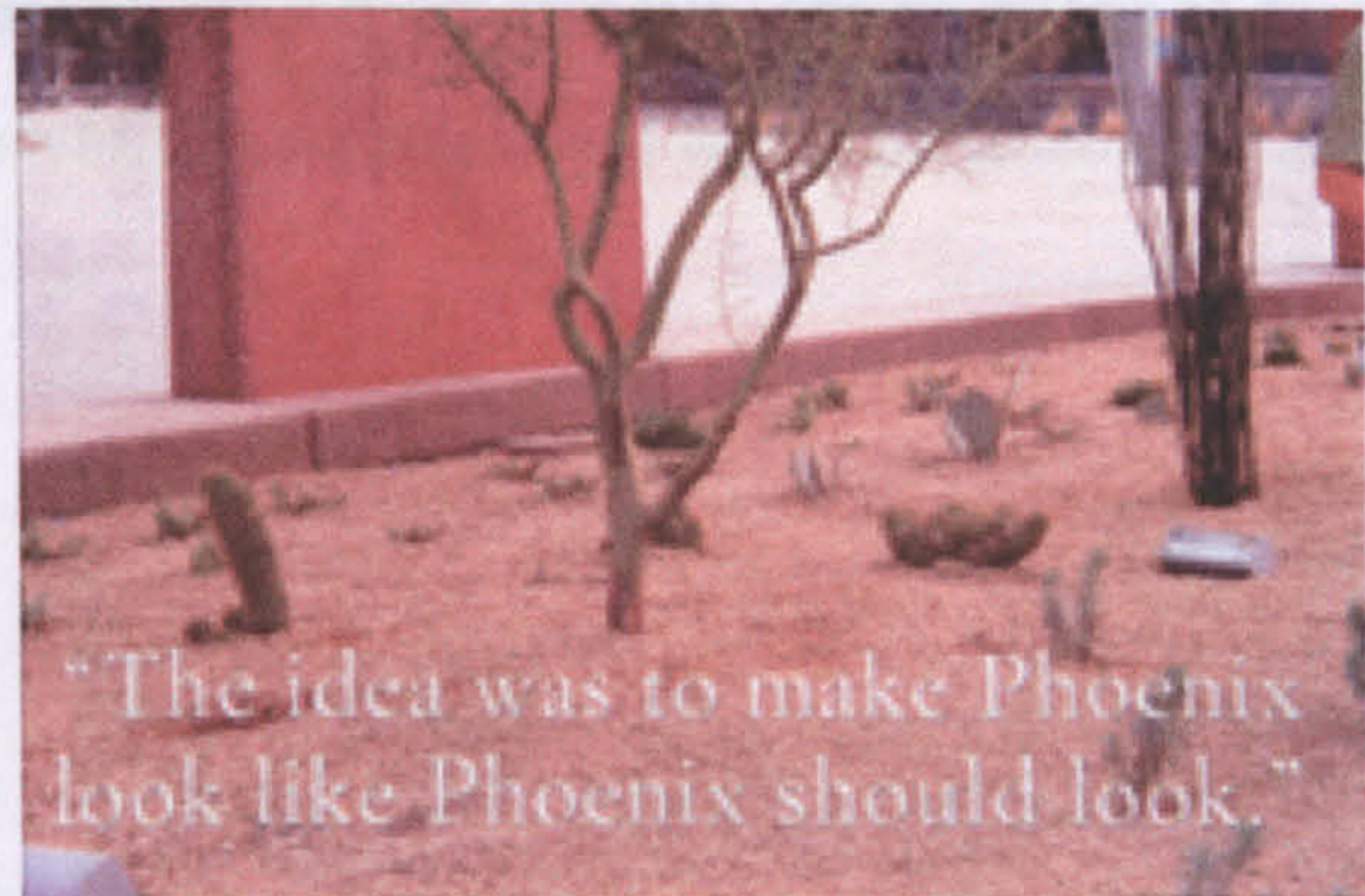
Landscape Professionals thought that it was time to shape desert cities in terms of their natural environment, rather than its new inhabitants' desires (figure 8-13). James Rose (1961) said: 'I feel that the lawn and shrubbery habit in landscaping is actually preventing something exciting and interesting from taking place.' It is not only that 'we fall into raptures over fields of flowers, brooks, birds, tree-forms, and that sort of thing.' And not only are we lightly impressed by 'the power, often malign and terrible, the deep elemental forces, the gaunt, the haggard and foreboding' (Kingan 1920), but we rather seem handicapped to adapting tastes to austere forms of beauty in nature, i.e. desert (Rose 1961). He added '. . . ; the recalcitrant lawn and the odious foundation planting are forever with us from Florida to Oregon, a sacred cow, which we feel compelled to have and hold at any sacrifice.' Designers had started to introduce desert plants into the urban domain. Tom Vanderbilt (1998) noted that 'in a context where the desert is viewed, more often than not, as a wasteland, in need of the enhancements of English lawns and Mediterranean plants, landscape Architects like Steve Martino in Phoenix 'restores regional identity and embraces the desert' in his designs of private house gardens,' e.g. the Douglas House, entry garden for Arid Zone Tree Farm in Phoenix, Arizona, the residence of Mr. and Mrs. Mike Greenberg in Paradise Valley, Arizona. William Thompson (1998) adds, 'Steve Martino's design for Arid Zone Trees restores a fragment of the Sonoran Desert to its former splendour and underscores the beauty of the natural landscape.' Andrea Dean (1996) said about Kitchell's private garden designed by John Douglas, 'a residential garden in Arizona's paradise Valley reconnects with to the desert landscape.' Not only in private gardens, but also in public open spaces. Kennedy and Zube (1991) highlighted that 'the continuation and increase of efforts to plant saguaro, mesquite, palo verde, acacia, smaller cacti and other attractive native trees and shrubs in medians, and in other public places such as the airport and major highway entrances to Tucson will continue to strengthen Tucson's image as a unique desert city' (Kennedy and Zube 1991).

8.6.5. The role of avant-garde group's in the Southwest.

The positive relationship between Americans and their South-west started by contradictory attitudes depicted in desert essays and articles published in monthly magazines between 1890-1905 (Teague 1997). Desert seemed at that time as inhospitable, yet unexplored and un-reclaimed landscape. The interest in desert finally took its mature form when desert was realised as a promising resource amplified first by the myth of the cowboy and finally by the success realised in turning the 'wastelands' into productive land through irrigation. The group who appreciated the sparse beauty of the desert for its own sake, was however the smallest segment among the Anglo Americans who immigrated to and inhabited the South-west (Teague 1997). Professionals like landscape architects,



The botanical garden will encourage Las Vegans in the use of native plants in residential landscapes.



"The idea was to make Phoenix look like Phoenix should look."

Figure: 8-13, Douglass House, designed by Steve Martino, top, professional magazines such as 'Landscape Architectue,' 'Cactus,' etc., have a substantial role in publicising the modern American perception of their South-western desert landscape, bottom.

natural scientists, highly educated people in other professions, and the avant-grade were among the first who found beauty in desert as early as the 1920s. We read for example for Grace Nickerson (1929) who gave a detailed description of Edward Mendle's garden that emerged at a time when Americans were re-considering their native landscape, on which he said, 'I had not realised how interesting, beautiful and artistic a large garden of cacti and succulents could be, until I visited the Edward Mendel garden.' In the following issue of the same magazine, Nickerson gave a complete account for Mrs M. B. Palmer's garden using more photographs this time he said: 'perhaps it is the first garden of the kind ever seen by many of the curious visitors. Exclamations of surprise and pleasure followed by varied discussions often reach the ears of Mrs. Palmer.' Such writings on private gardens of the avant-grade were brief lessons for the public on how to create a desert looking landscape in their front yards.

In the late nineteenth century, artists had adopted a harmonious landscape style to the surrounding natural desert landscape for their home-sites in mountain foothills, suburb and rural areas (Hecht 1975). This striking alteration in the American tradition of garden design created a new artistic concept of a new landscape approach for arid regions. Stones, rocks, boulders in their natural colour have been set up in a way that mimics the surrounding wild landscape. In the suburb, the wild landscapes had almost been left untouched with minimal alterations to provide a walkway or to fit in

a wall. The influence of the avant-garde group on lay people prospered during the 1950s. The elite groups of the society were the first respondents to the new culture, which emanated mainly from artists. This was prominent initially in higher-priced subdivisions, which were the first to abandon the grass-lawn landscape, which was gradually followed by middle-income subdivisions (Hecht 1975). Inside the city, the eastern-landscape-style had also been challenged but in a minor scale. The cactus garden, started by Professor James W. Toumey, was located on the west side of Old Main at the University of Arizona between 1896-1929 (figure 8-14). Walking through the campus today is like walking through a botanical exhibition presenting various compositions of desert plants, with the exception of the University avenue which is carpeted by a vast area of lawn.



Figure: 8-14, Two views of the cactus garden: on left, the west side of Old Main looking towards Old Main and on right the east side of Old Main.

Source: (the university of Arizona Library, Photographic File, 'Early Campus.'

8.6.6. The Role of Familiarity.

It seemed that newcomers to arid cities were only in need of time to adapt to their new desert environment that could not, practically speaking, naturally support temperate looking landscape. Shirley Behrens (1993) said about Wotan Throne, a modern Arizonan artist, 'it took Throne almost a year after moving to Tucson, Arizona, in 1979 to begin to see the colour within the light, the contrasts, the grandeur and openness, and to respect the awesome, even formidable, atmospheric effects the South-western sky produces.' Joanne McKeever, a resident of Verde Valley for 20 years, for example, described how furious she feels about the manicured golf course down the road at Verde Santa Fe, 'which contrasts sharply with the native vegetation of low scrub and creosote bushes' (Nachtigal 1998). Speaking of the golf course, she said 'I think it's ugly, I think it's an eyesore.' The twenty years she spent in the area have informed her perception to the degree she attributes such landscape as precise as 'eyesore.' As explained before, the visual arts, auditory arts,

literary art, and presumably mixed arts like drama, had set up a mode of thoughts that created models in the forms of a garden, a painting, a poem, or even a fiction. Without such type of models and knowledge, Joanne could not have been able to differentiate intuitively between what can be valued as an 'eyesore' and 'charming landscape.' In contrast to the past, newcomers to the Southwest, are mainly drawn nowadays by, what had been chief reasons to avoid the Southwest, the desert's clear sky, wide open spaces, scenic desert landscape. Andy Wasowski (1995) wrote in the Associated Press:

'Noah Webster was wrong. In his dictionary, he defined desert as "a desolate or forbidding area." Clearly, the famed lexicographer had never travelled through this country's Southwest. If he had, he'd have been amazed by the vast palette of colourful, vibrant perennials, shrubs and trees that are native to our Sonoran, Chihuahuan and Mojave deserts - plants that present a softer, gentler vision of desert landscapes.'

The major difference between both, the famed lexicographer and the writer in the Associated Press, is the kind of information they possessed on the desert. For Noah Webster, desert is no more than a term that describes the customary knowledge required to construct a linguistic definition for the term 'desert.' For the journalist, who possessed a good deal of sophisticated knowledge of desert landscape as his article suggest, the desert looked awesome. These two variant levels of knowledge had obviously yielded two distinctive forms of perception based primarily on different degrees of familiarity with the landscape. Familiarity here can be attained through formal knowledge gained by specialisation or common knowledge gained by life spent in the landscape.

People who inhabit desert cities have also developed a mode of perception that coincides positively with the surrounding arid landscape. The familiarity they gained toward this landscape has not only adjusted their perception to the less green landscape of the area, but has also tutored their faculty of perception not to value green landscape in the desert. A clerk at the Cornville Market said 'It is sad that people want to put green grass in the desert. I'd rather see the open range there and cattle than people driving around in golf carts' (Nachtigal 1998). 'We live in New Mexico, not Kentucky,' a New Mexico native Kim Hedrich said when she won a case in the court against Towne Park homeowners association who sued her when she 'ripped out her grass and xeriscaped (low-water-use landscape scheme) her yard in the spring of 1997' (Benke 1998). In a more sophisticated situations, Nachtigal (1998) mourn the way natural desert habitats are razed in front of urban sprawl. He wrote, 'in fields where cattle once grazed and hawks hunted mice, thousands of stucco homes with tile roofs are rising, looking a bit out of place in the stark, high desert.'

On the other hand, there is still a proportion of the society which still sees a need for lawn landscape even in arid cities. 'Looking down a row of lawns interrupted by xeriscape is like looking at someone who has a tooth missing,' is what the chairman of the Towne Park architectural control committee, said (Benke 1998). Part of the problem is that most people, lay and professionals as well, understand xeriscape as a landscape with minimum plants and more rocks, gravel and boulders, whereas a well designed xeriscape, can have blooming trees, shrubs, and ground cover as well. There are many plant species, trees, shrubs and ground covers, which possess attractive tones of green foliage and impressive colourful flowers. Among the public there are people who are aware of the degree arid plants can be alternatives to green lush landscape. James Walter (1998) said about his garden: 'My desert landscape uses mainly desert plants that provide as much shade as possible in summer and as much colour as possible in every season.' Others know from experience that using native desert plants in private gardens is economically rewarding. Richard and Pat Hartleben, for example, noted how they saved \$100 a year on water by xeriscaping their front yard (cited in Benke 1998). Brookbank (1992) said 'good landscape maintenance results in less work, which leaves more time for enjoying the outdoor living that attracted so many of us to the Southwest in the first place.'

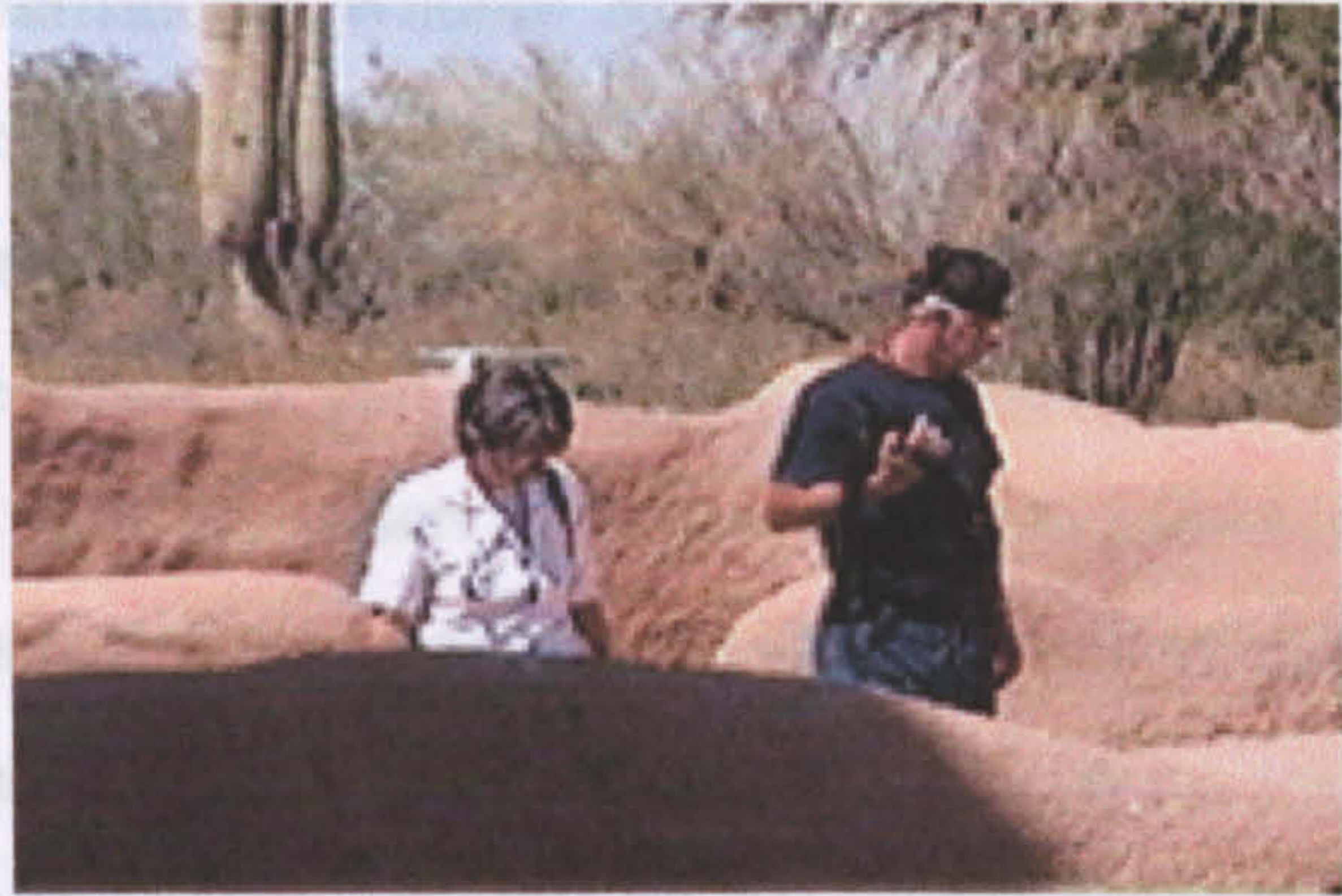
8.6.7. The Role of Public Education in Tutoring the Public's Perception of Desert.

'In contrast with American romantic views of the wilderness, acquired through literature, art and formal education, Egyptians have learned to dislike their wilderness' (Zube 1982). In another place, Zube highlight the factor of education on the way people perceive the desert landscape. He says: 'our study team found a landscape of great beauty – and significant wildlife and forage – as have the few Egyptian scientists who have ventured into the field. There is a profoundly different view of the desert that is both personal and professional, experiential learning having influenced their positive perceptions.'

Saarinen (1988) indicated that in Tucson 'there are well-established parks and institutions like the Saguaro National Monuments and the Arizona-Sonora Desert Museum which play a valuable educational role in maintaining and enhancing public appreciation' of desert landscape and water conservation (figure 8-15). In 1929 Homer Shantz launched a campaign from his position as a president of the University of Arizona at that time to raise a fund to purchase the land for what is now known as Saguaro National Monument in Tucson. William Carr who managed to collect enough support since his arrival in 1944 to establish Sonora Desert Museum or what he claimed as a



1



2



3



4

Figure: 8-15, most recreational facilities in Arizona are connected in some way or another with the desert environment and possess educational nature. Some of these facilities include 1) Tucson's Botanical garden in Tucson, 2) Casa Grande Ruins in Scottsdale, 3) De Grazia Gallery in the Sun in Chapel, 4) Sonora Desert Museum in Tucson. Tucson is also home for the air's world-wide natural history television program 'the Desert Speaks' produced by KUAT, PBS, Channel 6 in Tucson Arizona.

'help' in remodelling the view of the desert in the eyes of Tucsonians was struck by the opposition to desert in the city. One of the major tasks the Sonora Desert Museum in Tucson was devoted to accomplish is public education toward natural and cultural desert heritage. The program was designed to achieve many educational objectives, one of which is to 'protect traditional knowledge for future generations to use as a guide for living in this region' (Sonora Desert Museum 1999). The International Wildlife Museum in Tucson expressed its mission in the dedication to increasing knowledge and appreciation of the world's fascinating wildlife with emphasis on desert wildlife (International Wildlife Museum 1999). In 1988 Tucson Botanical Garden celebrated its location in the desert landscape of Tucson by the construction of an Xeriscape Demonstration Garden in which numerous native desert plant species of various vegetation forms are exhibited. Sabino Canyon to the southern part of Coronado National Forest in the north-eastern corner of the city set an example of both dry desert and desert oasis in a form of an open air landscape museum. Numerous other small businesses, art stores, gift shops, recreational attractions, and desert plants and cactus nurseries are mutually contributing to enhancing of the 'taste-making' process of desert landscape of the area. Hundreds of stores of diverse nature have adapted the word 'desert' some way or another in their business titles and logos. Beyond Tucson, there are many similar recreational facilities that are designed to upgrade the perceptual relationship between residents as well as newcomers and their surrounding desert landscape. Palm Spring Desert Museum, for example, proclaims its major ongoing role in the region as to foster appreciation for the desert landscape among the community through education in its various creative forms (Palm Spring Desert Museum 1999).

The media has also played a significant role in changing public perception through reporting the conclusions of research. Walters (1998), for example, said in his article titled 'Watering Basins are an Old Technique' in the Associated Press: 'University of Arizona research shows that in average Arizona soils, two inches of water on the surface will penetrate one foot. This will vary by area, of course, so check locally.' Attaching these conclusions to issues that are of immediate interest to the public is a potential tool of persuasion. Such contacts with the public has the virtue of raising public interest and therefore contributes to the change in the public's perception of particular conventions. In the 'Arizona Daily Star' 21. May. 1989, for example, an article titled 'Trees, they clean the air and lower electric bills' demonstrated the importance of desert trees by accentuating the economic factors as it highlighted that trees 'absorb carbon dioxide and produce oxygen' . . . reduce hot-weather cooling bills 'by 10 percent to 50 percent' (cited in Zube and Kennedy 1990). Richard Benke (1998) in his article titled 'Albuquerque Homeowners Battle Over Rocks vs. Grass,' in the Associated Press, collected experiences of residents who xeriscaped their front and/or back yards in Albuquerque, New Mexico. He cited 'When we come back the grass is almost seven miles high -

or it's almost dead,' said Hartleben, 67, who moved here after retiring from the New York police force in 1986. He continued 'we're probably going to rock more this spring' (cited in Benke 1998). In another place he cited 'Mrs. Hartleben said she doesn't miss the high maintenance of the grass: 'It was too much work and too much weed' (cited in Benke 1998). Thomas Saarinen (1988) made a note of the influence of the media in upgrading the public's awareness toward the serious water problem of Tucson, which as a result has, directly and indirectly, assisted the decline of grass-lawn landscape.

A visitor to the city of Tucson would easily glean the sense that the city is developing as a modern city of arts, dominated by desert culture, underlined by the influence of centuries of human habitation, and sustained by accessible, dramatic natural landscapes. The Tucson Official Visitors Guide (1999) define the city of Tucson as 'a modern city of art.' It also claims that 'residents of Tucson actively support the arts and the city's heritage, making it a thriving cultural centre and are vigilant in protecting Tucson's unique desert environment.' This notion of maintaining desert environment as a unique cultural identity has been a major trend among the public in the Southwest of the USA. We see for example how the public responded to such a campaign that aimed to achieve cultural acceptance of the desert to realise environmental, social, cultural benefits. We see for example how Jay Hawkinson from Phoenix, Arizona, considered his house's close proximity to a desert area that had maintained its natural characteristics as a first priority (Vanderbilt 1998). We see also how in desert cities of the Southwest like Phoenix, Arizona, residential lots are border onto desert open space or washes (flood plains) get higher premiums. Steve Martino (cited in Vanderbilt 1998) attributed this to 'people want to get close to nature.' This clearly means that these people became aware of desert natural beauty and are positively responding to its visual forms (Black *et al.*, 1985).

At a larger scale, for over a thousand years, farmers inhabited much of the present-day state of Arizona. All that remains of this ancient aboriginal culture including ruins of villages, irrigation canals, and various artefacts have been harvested in various modern educational-recreational programs. Vast areas of natural desert landscapes have been preserved as public areas, for conservation and recreation. These areas were categorised according to their natural, scenic, ecological, recreational, cultural, monumental, historic, archaeological significance. The common purpose of such a combination of recreational and conservation, natural and cultural strategy is to conserve, study, exhibit, and disseminate knowledge of South-western desert culture, fauna and flora. The survey of recreational areas that has been conducted by the author in Arizona in the spring of 1999 concluded that there are twelve different recreational categories in the state. In each

category numerous educational-recreational activities and attractions points have been developed. The most substantial role these recreational places have played is in the conservation and enhancement of desert landscape, not only in parks and natural reserves, but also in historic sites and national monuments, and desert landscapes that have been returned to their original state. This without doubt has created unique environments most of which are considered as international attractions. Historic sites that have been preserved within the natural wilderness have offered chances for the public to interact with the natural desert landscape. They have also offered countless hiking, walking, camping, and other recreating opportunities for many people through which visitors learn more about desert landscape. Grand Canyon, for example, receives 1.5 million visitors yearly. Casa Grande ruins, has become one of the places that attracts visitors from all around the globe. Recreational categories included:

1. National monuments such as Canyon De Chelly, Casa Grande, Chiricahua, Coronado, Hohokam Pima, Montezuma Castle, Navajo, Organ Pipe Cactus, Pipe Spring, Rainbow Bridge, Saguaro, Sunset Crater, Tonto, Tumacacori, Tuzigoot, Walnut Canyon, and Wupatki National Monument, (see figure: 1)..
2. National Historic Sites such as Fort Bowie and Hubbell Trading Post, (see figure: 1).
3. National Recreational Area such as Glen Canyon and Lake Mead.
4. National Parks such as Grand Canyon, Petrified Forest, Saguaro National Park. (see figure: 1&2).
5. National Forests, such as Apache, Apache-Sitgreaves, Coronado, Coconino, Kiabab, Prescott, and Tonto National Forests.
6. State Parks such as Boyce Thompson Southwestern Arboretum, east of Phoenix, and Desert Botanical Garden in Phoenix, Estrella Mountain Park, White Tank Mountains Park, Granite Mountain Park.
7. National Scenic Trails such as Highline Trail, Santa Catalina Passage, south Rim Hikes in the Grand Canyon National Park.
8. National Wildlife Refuges such as Alamolake, Alchesay, Bill Williams, Buenos Aires, Cabeza Prieta, Cibola, Empire-Eienega, Flag Staff, Havasu, Gila River, Hassayampa River, Imperial, Kofa, Prker, Pine Top, Robbins Butte, San Bernadino/Leslie Canyon, San Carlos, San Pedro, Williams Creek, and Willow Beach National Wildlife Refuge.
9. Scenic Areas such as Monument valley, Antelop Canyon, and Water Holes Slot Canyon.
10. Wilderness Area, there are more than 45 designated wilderness areas in Arizona only.
11. National Conservation and Preserve Areas such as Arabvaipa Canyon Preserve, Canelo Hills Clenaga Preserve, Empire-Cienega Resource, Gila Box Riparian, Hart Prairie, Hart Well Canyon, Hassay Ampa River Preserve, Patagonia-Sonoita Creek Ramsey Canyon Preserve,

San Pedro Riparian, and San Rafael Valley National Conservation Area. From 248 designated ecologically valuable sites, 52 sites have been identified as natural conservation areas. In addition, there are 21 American Indian tribes with reservations comprising 27 percent of Arizona Acreage (Conservancy Chapter 1999).

12. Scenic Byways and Recreational Drives such as Burr Trail, Canyon De Chelly, and Coronad Trail Scenic Byway.
13. Hiking trails such as Verde Valley, Apache Maid, West Clear Creek Hiking Trail.
14. Local Recreational Places like Gardens, (e.g. Tucson Botanical Garden, Cactus Garden), museums, (e.g. Sonora Desert Museum, International Wildlife Museum), and Galleries, (e.g. Gallery in the Sun, Mia's Studio in the Desert, the numerous Galleries in the city of Tubac).

Gardens make a contribution in offering opportunities through which the public can learn and appreciate the beauty of desert plants. In Arizona, there are many and different gardens that serve this objective in most cities such as Tucson Botanical Garden, Phoenix Botanical Garden, Boyce Thomson National Arboretum, etc.

8.6.8. The Role of the Market.

Compositions of words, images, sounds or material are all fields of art (Simmons, 1993). It is a process that primarily implies the making and production of artefacts. In modern life, art goes beyond conventional forms that used to be enshrined in galleries, and museums. In all our daily life encounters with consumable objects, art is facilitated in one way or another (Ehrlich 1970). Shopping for example does not solely involve judgement on the quality of merchandise. Artistically designed artefacts and wrappings contribute to the selection of products by shoppers. People not only pay for functionality of artefacts, but also for their appearance. Manufacturers use art as a tool in the design of products to be successful in the modern highly competitive market (Papanek 1971). Simmons (1993) differentiated between what he called 'practical arts' and 'fine arts.' Practical arts are 'those which primarily serve a useful function but which may well also appeal to, and perhaps try to mould, our aesthetic senses, like architecture or automobile design' (Simmons, 1993). Tracing the modern market of garden and garden's material in the United States, one might conclude that the popular American statements that say 'in the dirt you could cleanse your soul' and 'grow a bushel of peas, and you have rooted your family in the American heartland' have been replaced by something like 'a \$1,995 VIP Robotic Solar Mower' and 'Better Homes and Gardens Complete Guides to Gardening CD-ROM' (Gibbs 1996). This dramatic alteration in the way

people thought about and acted in their gardens follows the modern way of life in which people find as much pleasure in spending money as actually spending time in their gardens.

In Euro-America culture, gardening is one of the most favourite pastimes which the public enjoys during weekends and other leisure times. In addition to private gardens, public support encourages government to upgrade the natural environment at a variety of scales (Hough 1994). In England and Wales, for example, councils spend £800 million annually on 120,000 hectares of public parks⁷, gardens and green open spaces (The Audit Commission 1988). In 1995, Americans spent about 26 billion US Dollars (\$101.8/person/year) on gardens and gardening activities, which corresponds to an increase of 15.5% from the year before and 37% from five years ago (Gibbs 1996). These striking figures do not only indicate an ascending interest in garden and gardening activities in American culture, but also highlights the fact that gardening is not solely the traditional low key hobby that people used to develop in their backyards or front gardens. In other words, American gardens are supported by a fashionable, techno-cultural kind of business empires. This can be detected through simple tracing of advertisements of garden and gardening products in 'Home & Garden' and similar magazines. The price and quality of products vary from a free package of seeds accompanying such magazines to silver trowels worth \$2000 (Gibbs 1996). Between these two extremes lies an endless variety of products that fit endless desires and tastes.

William Thompson (1998) commented that he had often heard Steve Martino⁸ remark on 'how difficult it was for him to find nursery-grown trees that would thrive in his desert-derived landscapes with little supplemental irrigation.' Michael Leccese (1996) adds 'as recently as the late 1960s desert plants were in short supply in nurseries of the area, and landscape architects were unfamiliar with the techniques by which to apply them to landscape design.' Arthur Houghton (1929) highlighted that 'there was no reliable popular literature on the subject,' i.e. cacti, 'and only fragmentary and hard to get scientific books.' Plants nurseries carried no arid landscape materials, contractors considered desert plants as weeds, landscape architects had insufficient knowledge on desert landscape techniques, the public had not yet developed a complete awareness of the beauty of their desert landscape, and cities like Tucson and Phoenix looked like faked replicas of the temperate East (Leccese 1996).

⁷ Total area of England and Wales = 151,201 sq km., (Office for National Statistics 1999).

⁸ Landscape architect Steve Martino, FASLA, Phoenix Arizona, designed the desert landscape of Douglas's house that own an ASLA merit award for design.

Plants nurseries in the Southwest today are stocked with diverse hardy desert plants for landscape use (Eakin 1996). In the Southwest, shopping in garden's department stores is almost like walking in an art gallery. Desert landscape material mingled with the native American culture has produced garden's and gardening products with an artistic value. Sand, gravel, rocks, cactus, seeds, and gardening instruments are all packaged in artistic forms that express the desert landscape and the unique culture of the area. All of this have helped in encouraging desert landscape style in Tucson as well as other South-western cities.

Some of the evidence that show the influence of the market on Arizonan perception of desert landscape is the market trend of garden and gardening materials. In (figure 8-16), three American states, Illinois, Pennsylvania, and Arizona, have been compared in term of number of establishments and value of sales in relation to retail trade in general, building material, and retail nurseries (garden and gardening materials). Although the table shows a reasonable growth in values of sales in the retail trade in general between (1987-1992) ranged between 11.8 and 38.8%, Arizonan retail nurseries recorded a drop of 21.2% in the value of sales in retail nurseries when maintained steady increase in retail trade in general and building material trade in particular, i.e. building development is enormously growing. This decline in garden retail trade in Arizona is followed by a surprising rise during the next five years (1992-1997) of 340.6%.. The question that raise itself here is: what might the reasons be for this situation in which other indices of economic activity, i.e. expenditure on building materials and population growth are static. Other northern and eastern states, as well as the whole country, have been maintaining steady retail trade status in all fields in the market. On a comparative basis, the two largest cities of Arizona (Phoenix and Tucson) are growing whereas northern cities such as Chicago and Philadelphia are declining in population (figure 8-17).

According to Hecht (1975), the decline of grass lawn landscape in Tucson was not until 1950s, nevertheless studies like of Saarinen (1988), Kennedy and Zube (1991), briefly conclude that the city did not practically embrace its desert image until the 1970s. On the basis of this brief historical review, it might be argued that when people accepted a desert landscape style for their front gardens, the garden market declined as desert landscaping material were not yet readily available in the market, i.e. rocks, gravel, desert shrubs and trees. Richard Benke (1998), a writer for the Associated Press, demonstrated under the title, 'Albuquerque Homeowners Battle Over Rocks vs. Grass,' how people in New Mexico are nowadays fascinated by desert landscape as they were by English grass lawn landscape style. The assumption, is therefore as that the decline in gardening retail trade between 1987-1992

was due to a demand for natural plants and materials (such as rocks) that the established industries initially could not meet, the market was not ready to cope with the change when people had managed landscaping their own gardens without seeking professional assistance. This is especially true in the suburbs where private gardens have readily adopted this change of attitude towards the existing wild scrubby landscape. During the 1990s, as the idea of desert landscaping became more prominent among the public, the market was able to respond by supplying desert landscaping material which led to the large increase in sales reported for the period 1992-1997. This demand was not solely for desert materials *per se*, but more importantly for by value added 'desert' products (i.e. cacti in a gift artistically-wrapped box) (figure 8-18). In addition, professional landscape architects, embraced desert landscape trend such as Steve Martino, were available to provide professional service to the public.

Figure: 8-16. Statistical Retail Information of Arizona in relation to other Northeast and Midwest states.

		Number of establishments			value of sales			%of change 92-87	%of change 97-92
		1987 (no.)	1992 (no.)	1997 (no.)	1987 (\$1,000)	1992 (\$1,000)	1997 (\$1,000)		
The United States	Retail trade	1503593	1 526 215	N/A	1 493 308 759	1 894 880 209	N/A	26.9	N/A
	Building material,	73 805	69 483	N/A	81 486 551	98 832 146	N/A	21.3	N/A
	Retail nurseries,	10 692	10 857	N/A	5 410 774	6 327 846	N/A	16.9	N/A
Illinois	Retail trade	63 945	64 826	N/A	68 263 937	85 765 697	N/A	25.6	N/A
	Building material,	3 083	2 946	N/A	3 392 581	4 132 616	N/A	21.8	N/A
	Retail nurseries,	453	438	N/A	304 198	343 495	N/A	12.9	N/A
Pennsylvania	Retail trade	70 823	71 652	N/A	71 216 605	87 787 842	N/A	23.3	N/A
	Building material,	3 348	3 333	N/A	3 746 650	4 188 235	N/A	11.8	N/A
	Retail nurseries,	487	577	N/A	250 724	347 952	N/A	38.8	N/A
Arizona	Retail trade	19 798	21 351	16 283	21 778 355	29 365 954	43 960 933	34.8	49.7
	Building material,	898	831	1 203	1 116 720	1 400 929	3 760 577	25.5	168.4
	Retail nurseries,	146	135	234	83 441	65 723	289 546	-21.2	340.6

N/A= data is not available

Source: adapted from Census of Retail Trade 1992, Geographic Area Series. 1992, 1997. www.census.gov/index.html

Figure: 8-17.
Population Growth in Four American Cities

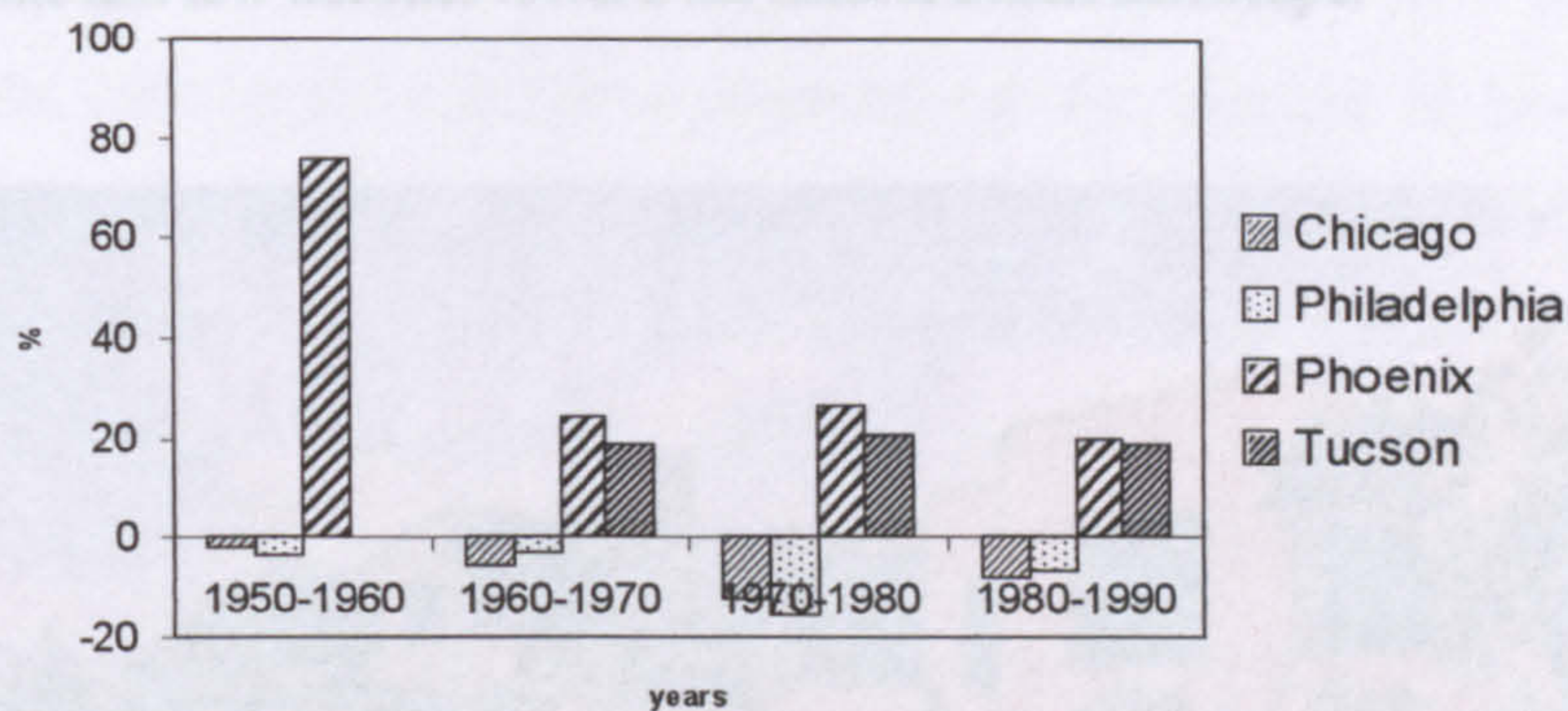


Figure: 8-18, 'cacti in a box' is one of the common forms that present desert plants in the market.

It is assumed that the dramatic change in the values in Arizona reflect American's changing perception toward desert, which studies in this field have recorded. Zube and Kennedy (1990), for example, highlighted that 90% of respondents have indicated their reaction to the region's desert landscape as 'loved or liked it.' Twenty years earlier, Saarinen and Cooke (1970) concluded that one percent only of interviewees believed that the desert landscape of Tucson was 'an advantageous character of Tucson's landscape.'

This dramatic change is also evident in professional practice. In contrast to the early years of the 20th century during which commercial leaflets and brochures advertised Tucson as a green oasis cut from the Northeast and placed in the Southwest (Hecht 1975), the city nowadays proudly demonstrates how to utilise desert landscape in urban environments. One of the prominent examples of this is The Academy Village at the edge of the Saguaro National Park on the western side of Tucson. In its advertisement, a passage reads 'the Academy Village is thoughtfully designed, with spacious single-family homes and preserved natural desert' (Anon 1999). The advertisement was accompanied by a water colour drawing of the external view of the Village to show the blending of the indigenous Spanish and Indian architectural style with the surrounding

desert landscape (figure 159). This example demonstrate clearly how much change Tucson society has embraced over the last few decades toward the natural desert landscape.



Figure : 19, a water colour presentation of one of the sides of the Academy Village in which priority was given to the surrounding landscape. Source: (Tucson Official Visitor Guide, spring-summer 1999).

There had also been growing interest in the ethnobotanical knowledge of the South-western desert (Burgess 1965). This interest was largely based on the market value of native plants for food, drink, pharmacological, fibre, and building materials and uses. Other kinds of public literature like *Cactus and Succulents* magazine, *Amateur Bulletin*, etc., e.g. 'Fruits of the Desert' by Marie Jacobson Schulte (1929b), had frequently explored desert landscape in order to fill the vacuum in this field of public knowledge. Studies were conclusive that the desert was supportive of human life at the time of the native settlers, however, 'people living in the desert must acknowledge its rigorous limitations' (Zwinger 1996). The ornamental aspect of most desert flowers and fruits was, additionally, found the most rewarding and worthy of use in decoration of indoor spaces.

8.6.9. Governmental Action.

Local governments in association with research centres in universities have helped realise the practicality of utilising desert landscape in urban areas. In an attempt to force water conservation in Albuquerque, New Mexico, for example, the city allowed a maximum of 20% any new home lot, excluding built up and paved areas to be covered with irrigated lawn (Benke 1998). The city has been promoting xeriscaping and use of native desert plants to minimize the use of water for irrigation purposes. There are many example in which some States have played a significant role in promoting xeriscape in urban landscape. Government officials in Arizona have threatened restrictions on development unless Yavapai County communities stop pumping out more groundwater than they return to aquifers (Nachtigal 1998). Overall however, attempts to attain an

environmental balance in a landscape by encouraging changes in private landscaping have been only successful in gaining public acceptance in a few particular cases. One of the reasons for this conflict lies between individuals' short-term interests, e.g. the pleasure of having a lush green garden, and long-term community interests, e.g. the general benefit of saving underground water by reducing pumping of water for irrigation (Kals, Schumacher, and Montada 1999). Many studies have firmly established that changing public behaviour and values developed as an outcome of the high-consumerism-lifestyle is the only hope of achieving a balance between growing human needs and Earth's limited natural resources (Kals, Schumacher, and Montada 1999; Ouis 1998; Thomas and Middleton 1994, Coffin and Lipsey 1981).

During a ceremony at the National Arboretum in Washington DC., the government unveiled a plan to triple spending (at a cost of £1 billion) on reservation and development of natural desert in an effort to preserve vulnerable lands from the California desert to the Florida Everglades (Hebert 1999). The plan calls for adding thousands of acres to the system of federally protected lands and providing states with nearly \$600 million for land preservation. 'Environmentalists long have urged the administration to increase land purchases to protect undeveloped, but vulnerable, forests, grasslands, beaches and marine sanctuaries from commercial exploitation. The Clinton proposal calls for full funding of the program and would funnel millions of dollars more to a total of \$1 billion a year - into land preservation. The package to be sent to Congress as part of the budget will include \$442 million to buy holdings in national parks and historically or environmentally significant parcels that might otherwise be threatened. An additional \$588 million would be provided to States to buy land or work with private parties to create conservation easements or private land trusts (Hebert 1999). Priority land purchases under the program would include large tracts of private parcels within and near the Mojave and Joshua Tree national parks in the Southern deserts (Hebert 1999). The Associated Press reported on November, 16, 1999 that about 487,000 acres of California desert would come under the protection of the federal government under a \$56 million deal. The land includes 200,000 acres of habitat critical for the endangered desert tortoise, 150,000 acres for bighorn sheep, and the biggest cactus gardens in the world at Bigelow Cholla Gardens. Although most desert states of the Southwest look open and undeveloped, a remarkable proportion of the land is owned by the state and federal government which make protect it from commercial development (Nachtigal 1998). 'Environmentalists have argued that there is widespread public support for setting aside land for preservation and that Congress traditionally shortchanged these efforts' (Hebert 1999). This evidently express that the government as well as the public supports preservation and protection of natural landscapes in both temperate and desert areas alike.

8.7. Historcial Background of Tucson, Arizona.

8.7.1. History of the city development.

The Tucson locality was inhabited by Indians, known as the Hohokam or 'the vanished ones.' According to most historic references, the Hohokam farmed the area from the first century AD., and later on were replaced by the Pima and Tohono O'odham tribes. Toward the end of the seventeenth century, the Italian Father Eusebio Francisco Kino made his initial visit to the area. The city of Tucson first emerged in Arizona when the Spanish established their military post along the Santa Cruz River in 1776 (Zube, Simox, and Law 1986). In August, 20, 1775, the city of Tucson was founded by the Irishman Hugh O'Connor. The walled town at that time necknamed 'the Old Pueblo' provided refuge for travellers and early settlers who inhabited the area and called it home by the end of the 18th century. In 1821, the Spanish claim on Tucson ended when Mexico gained independence. In 1853, the Gadsden Purchase made the city part of the United States. Tucson was known as a rowdy frontier town tempered by social refinements brought by city settlers. In 1867, the city formerly became the capital of the newly formed Arizona (an Indian name means the little spring) Territory. Between 1870 and 1880 the total population of Arizona grew from 10,000 to 40,000 (Peplow cited in Zube 1982). In 1880 Indian wars came to an end, and about the same time the railroad crossed the New Mexico and Arizona territory. The capital was moved north to Phoenix before Arizona became a state in 1912.

In recent history, Arizona as a whole has maintained increasing population growth, compared with other states of the east and north-east of the United States (figure 8-14). Since the end of Second World War, expansion of cities in the Southwest has led to urban sprawl. Rober Riely (1967) noted that from 1940 to 1960, for example, Tucson grew from a population of 36000 to 213000; Phoenix from 65000 to 440,000. In 1950, Tucson was not included in the 100 largest urban places in the United States while Phoenix was ranked 99th. Thirty years later, Tucson was ranked the 33th, whereas Phoenix was the 9th. During the 1980s, Arizona was second to Nevada in population increase. The total population of 1,775,400 in 1970 was doubled to 2,718,200, (53%), in only ten years (Zube 1998). On a comparative basis with the eastern and northern states, Arizona is growing while eastern and northern states have been witnessing a small decline in population (figure 8-17). This has been attributed to the so-called 'Sunbelt' phenomenon of the region which has been drawing immigrants from the north who had found in clear sky and warmer weather a suitable environment for home. Ervin Zube (1982) indicated that although the general view in the past was not very much in favour to the extreme drop in temperature between day and night, there was strong preference for the clear atmosphere and invigorating climate. On the other hand, hot climate was

surprisingly preferred in some localities like in Tombstone, western New Mexico, California Desert and Death Valley (Zube 1982). Phoenix and Tucson, which house 76% of the state population, are the main points of destination for migrants seeking a warmer and more convenient urban and suburban life (Riley 1976).

8.7.2. Tucson's Natural and Urban Setting.

The Tucson metropolis is ringed by five mountain ranges. The Santa Catalina Mountains are on the north and Northeast, the Rincon Mountains are to the east, the Santa Rita Mountains in the south and southeast, the Tucson Mountains on the west and the Tortolita Mountains on the Northwest. The major seasonal rivers that pass through Tucson are the Santa Cruz River, the Rillito and the Pantano wash.

The city of Tucson, in contrast to the conventional form of cities, has not been developed around a historic commercial centre. The timing of development of the city was coincident with the arrival of technological urban-life-support system, and was designed from the beginning to accommodate convenient urban and suburban lifestyle served by a good traffic network, always available, inexpensive car parking spaces (Riley 1967), excellent telecommunications, and service industry support. Nachtigal (1998) began his article 'Growing West, Arizona's Verde Valley is a Hot Spot' by saying 'when Ken and Nancy Brungraber left Wisconsin for a warmer climate two decades ago, they thought they'd found a quiet haven in Cottonwood, a one-stoplight town nestled in Arizona's Verde Valley.' He continued, 'but now Cottonwood has plenty of stoplights - along with McDonald's, Wal-Mart, subdivisions and clouds of dust from new roads built to handle all the traffic.'

On the other hand, the increased interest in living in the Southwest has its negative effect on the natural desert landscape. Ffolliot and Thorud reported that riparian landscape in Arizona totalled 121,500 ha only (cited in Zube and Sheehan 1994). In a study that investigated landscape changes in areas around the San Pedro River, south of Tucson, Arizona, Ervin Zube (1998) concluded that unpaved roads has contributed in the dramatic changes in the wild landscape. Unpaved roads leading to remote areas targeted for recreation, hunting, and grazing has been doubled in length between 1935 and 1986 in that area. In a city like Phoenix with an expansion rate of an acre per hour, desert-clearing for development means the contraction of natural desert landscape to confined areas within federal lands, natural museums and preserves, and tribal reservations.

Arizona's population has grown from 2.7 million in 1980 to 4.6 million today, a trend state officials hope will continue. They are actively recruiting elderly people of means to retire to Arizona, touting the small-town friendliness and amenities of the state's rural communities. With growth comes traffic and demands on roads, water, sewer and other utilities. Long-time residents of Arizona's small-towns are worried about 'the transformation of the high-desert landscape into a distant suburb of Phoenix' that has lost its indigenous landscape.

Unfortunately, one of the negative aspects of the change in the American perception of their desert landscape is increasing human pressure on the natural landscape. Randall Henderson (1968) warned against irresponsible attitudes to development of the area that might change the unique character of the landscape. He said: 'this is our land, the beauty and majesty of which must be preserved not only for ourselves but for the enjoyment and inspiration which future generation in a more crowded world will have a need of even more urgent than we of today.' Despite plentiful examples of sustainable developments and public recreational educational programs, in recent history there are also places in which the devastation of wild landscape has reached an unreclaimable levels. One of these sites is an entire square mile of rich wilderness in the Sonoran Desert to the south of Superstition Mountain. The area has been completely cleared of native vegetation to accommodate a housing development and golf courses (figure 8-20). Similar housing developments are located in the foothill of the McDowell Mountains near Phoenix and in north Scottsdale, east of Pinnacle Peak (Adam 1999). Here the urban sprawl has destroyed one of the lousiest patches of Sonoran Desert preventing the coexistence of urban and natural landscape.



Figure: 8-20, cleared scrubby desert landscape in north Scottsdale for the purpose of establishing new subdivision. Source: (Adam 1999)

8.7.3. Anglo-American acceptance of desert landscape: the Tucson Model.

The early settlers' arrival in the area was known to be of purposeful nature, i.e. searching for minerals (figure 8-21). Remnants of native American's historic sites also show that Anglo-Americans at the time were apathetic to, not only the natural environment (8-23), but also the native cultural landscape (figure 8-22). Kennedy and Zube (1991) indicated that although part of Tucson's distinctiveness is a result of its unique urban vegetation composed mainly of Sonoran plants, in the early history of Tucson it is evident that exotic vegetation was preferred to native Sonoran desert vegetation. This mode of perception toward desert was the norm in all South-western states of the US. Richard Benke (1998), a formal Associated Press writer, wrote 'For years, people moving to Albuquerque, New Mexico, from the East have been bringing a little bit of home with them, planting lush green lawns where there were once rocks, cactus and bones bleached by the desert sun.' 'We often joke that they bring Ohio with them," said Jean Witherspoon of the city's Water Conservation Office (Benke 1998). 'Much of the history of Tucson's landscape style,' as Saarinen (1988) highlighted, 'relates more to the imported values and lifestyles of its immigrants than to any effective adaptational response to a desert environment.' Louis C Hughes, editor and publisher of the Arizona Star, and later Governor of Arizona Territory, had his garden in 1873 carpeted with lawns underneath green exotic shade trees (Saarinen 1988). According to Hecht (1975), Tucsonans were proud of their establishment of a lush green urban landscape in the heart of the desert, regardless of its impracticality (figure 8-24). The grass lawn tradition in Tucson accompanied the establishment of the first Anglo American settlement in the area (Zube, Simcox, and Law 1986). Despite the noticeable presence of the Mexican population in the city, their traditional landscape culture had not been a model for Anglo Americans' front gardens. Rather, and according to Hecht (1975), as Mexicans moved to new eastern-style subdivisions, they were forced to follow building setback requirements that support open-lawn front gardens. This building setback requirement was part of a planting program the city initiated in 1894 aiming the conversion of Tucson from being a desert city into a green oasis for the purpose of beautification, shading, dust reduction, and horticultural experimentation (Zube and Kennedy 1990). The successful implementation of the first program led to a second phase that took place in 1907, which aimed at the creation of an urban forest (Zube and Kennedy 1990).

The arrival of the train in 1897 motivated, not only the transportation of newcomers from the north of the country, but also enabled them to bring their open-grass-lawn landscape material

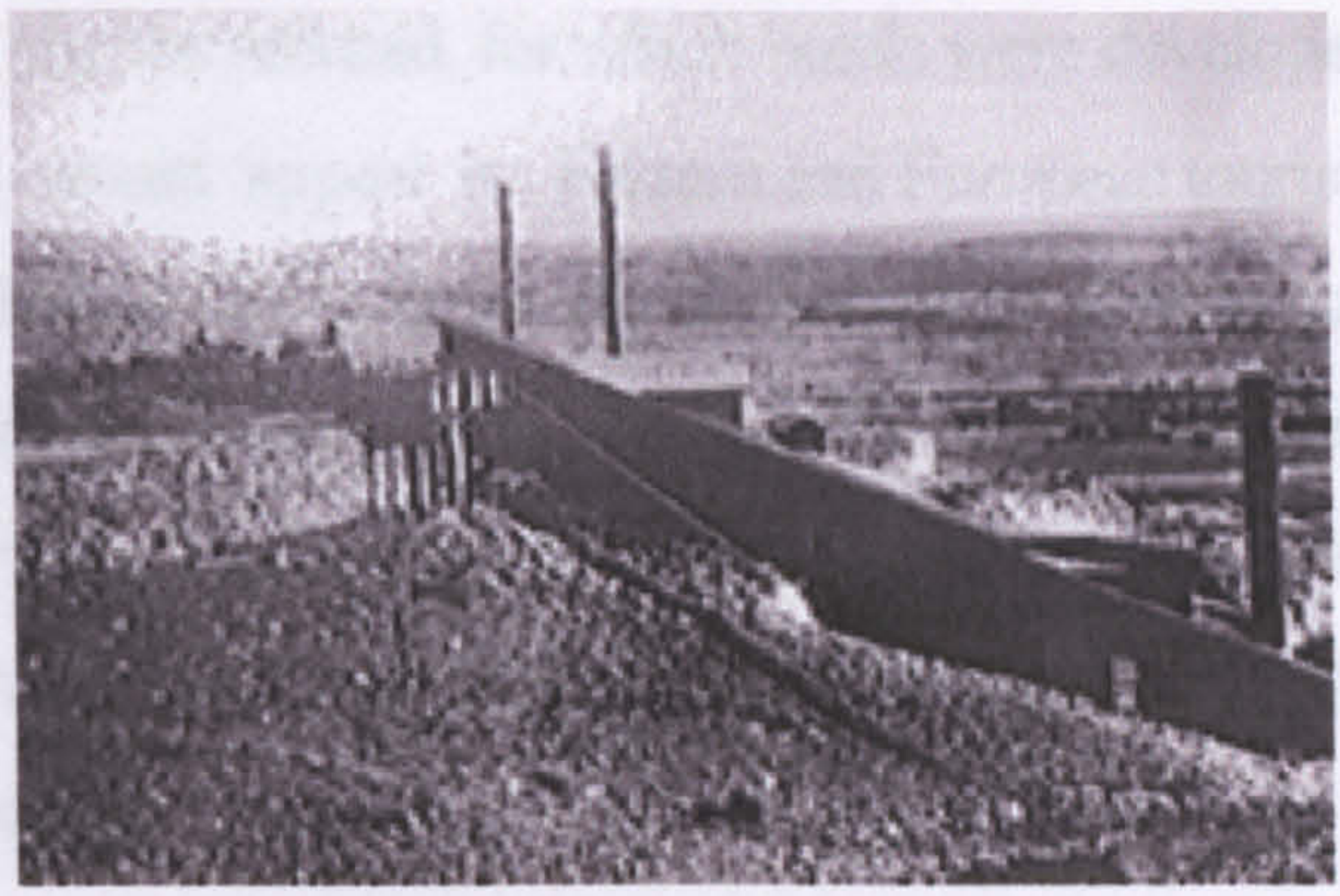


Figure: 8-21, left, ore wagon loading at early silver mining (1880s) shaft to haul ore to Charleston Mill built by Schieffelin's partners, Richard Gird on the right.
Source: Tombstone Museum of History.

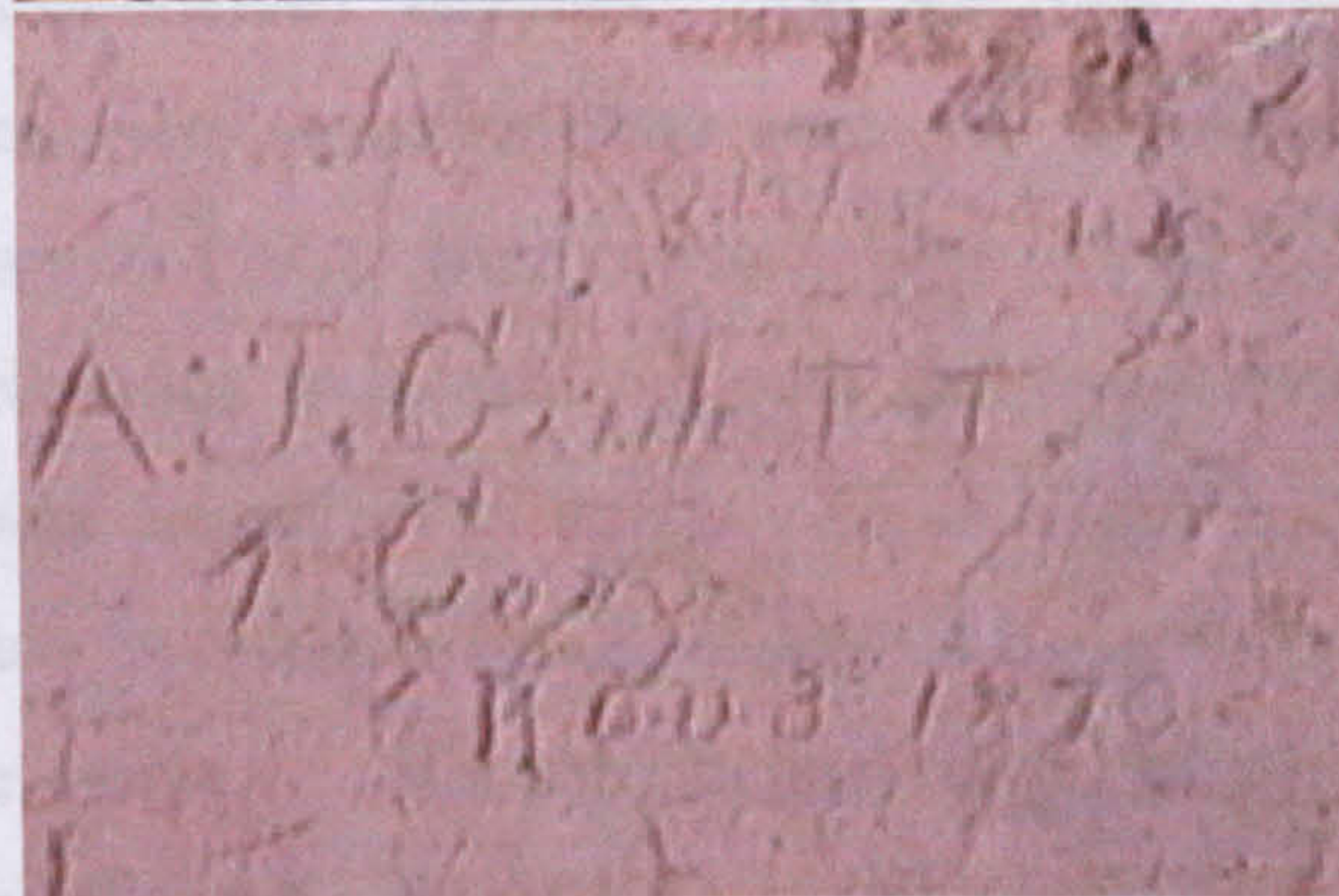
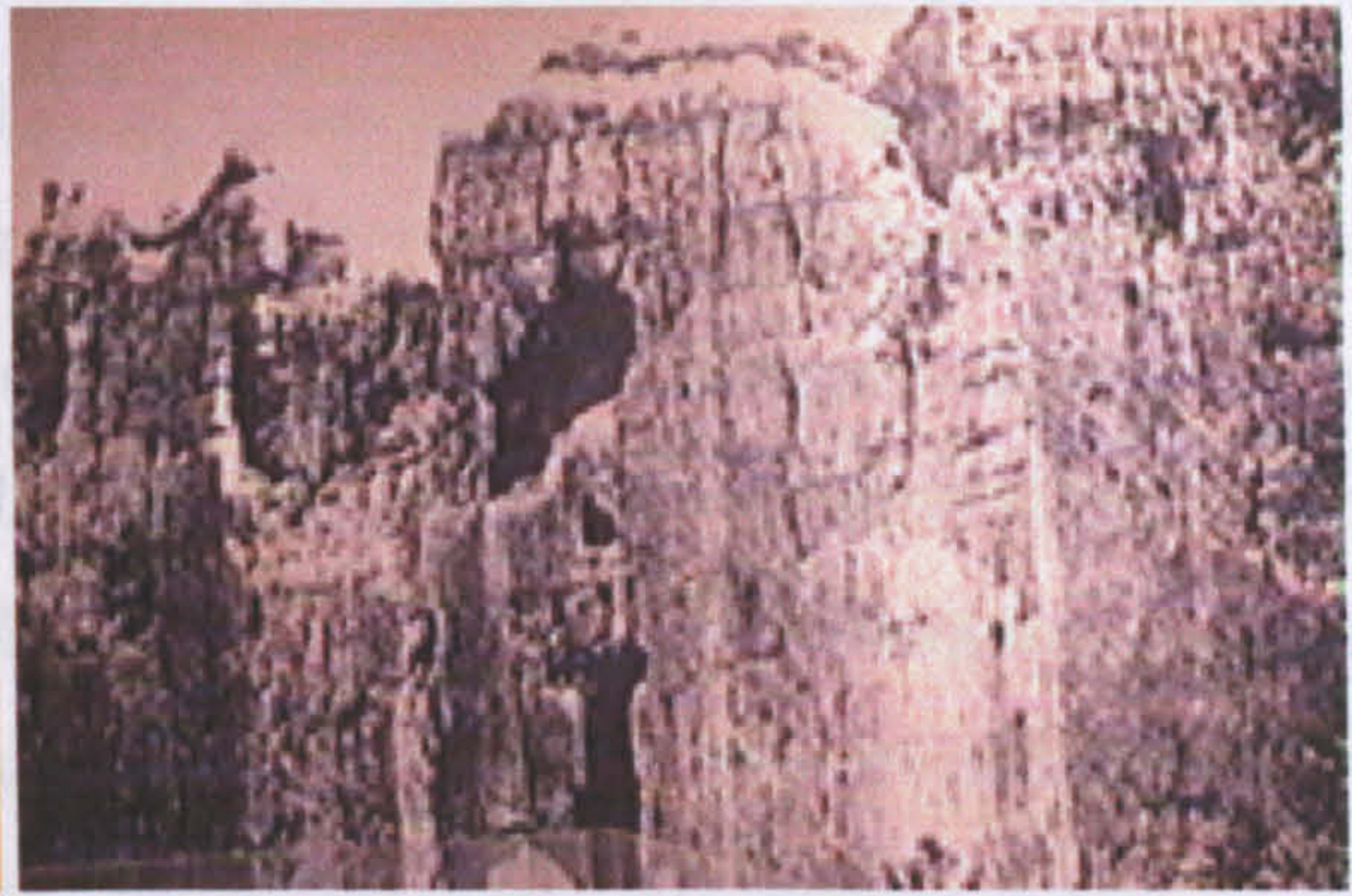


Figure: 8-22, Among the most historically valuable ruins in the Arizona desert is the Casa Grande, or "Big House," one of the largest and most mysterious prehistoric structures built by the ancient ones the Pima call the Hohokam, "those who are gone." The walls show signs of early vandalism (dated 1870). The National Archeological Preservation protects the Casa Grande and other archeological sites within the area.



Figure: 8-23, old small towns such as Tombstone on the left as well as big towns such as Tucson on the right in Arizona developed exotic green planting schemes.
Source: left, Tombstone Museum of History; right, Sonora Desert Museum.

with them. In addition, tourism was advanced by the railroad, for which hotels were developed within a green oasis landscape in the way that would appeal to Eastern and European tourists (Saarinen 1988). From that time until the mid of the 20th century, the population of Tucson had doubled many times as a response to the well published climate and the economic environment of the city (Zube, Simcox, and Law 1986; Jackovics and Saarinen 1978; Riley 1976). Most studies agree that climate has been the chief reason for those who relocated to Tucson during the 20th century (Hecht 1975; Saarinen and Cooke 1970; Parker 1948).

The city began to abandon the idea of the oasis image around the 1950s (Hecht 1975), when attention was directed toward practical policies that could efficiently deal with problems like diminishing water resources (Zube and Kennedy 1990). The scarcity of water in the Southwest, in general, has led to restrictions on the cultivation of lawns and promoted what is known as 'xeriscaping,' or low water demanding landscaping (Benke 1999). In Tucson the problem is rather intense for the city is the largest of those cities in the Southwest that depend heavily on ground water (Saarinen 1988). Households have progressively replaced grass-lawn front yards with miniature desert landscapes collected from the nearby wild areas. Gravel, rocks, boulders, cactus, palms, acacias, and desert shrubs have become a familiar components of Tucsonan front gardens and new tourist-oriented facilities. On the other hand, central medians, institutional buildings, and commercial establishments were still behind in the seventies (Hecht 1975) (figure 8-25). Thomas Saarinen (1988) later concluded that 'it took close to 100 years for the Anglos in Tucson to change their tastes in landscaping, and the shift is not yet complete.' People now admire Tucson for its desert unique urban image. An interviewee, in Jackovics and Saarinen (1978) study on sense of place in two Arizonan cities, said 'it is easy to get out in Tucson and enjoy the beauty in and around the desert . . . it is big enough not to go stale, but small enough so that you don't encounter the big city pressures and you can enjoy the beautiful desert.'



Figure: 8-24, Plant material was transported to the area forging an eastern grass lawn landscape in both high priced, (left), and low priced, (right), subdivisions in Tucson.
Source: (Hecht 1975)



Figure: 8-25, grass lawn was still in work in central medians and institutional sites, whereas houses' front gardens were ahead with xeriscaping fashion. Left: Speedway Boulevard, middle: University Boulevard, right: middle priced houses' front xeriscaped garden. Source: (Hecht 1975).

The most advantageous factors that motivated the decline of temperate north eastern looking landscape in Tucson included cost, labor, environmental issues, and changes in lifestyle (Hecht 1975). Low initial cost and less maintenance work for desert landscaping were shared concerns among middle class Tucsonans, while upper class's justification was more relevant to changes in lifestyle (figure 8-26). On the other hand, environmental issues at that time were not as direct as other factors in promoting acceptance of desert landscape as substitute for lawn-landscape, however, it has been recently become an issue among all social classes.



Figure: 8-26, Residential buildings in the suburb of Tucson have replaced the typical European building's forms by flat roofed buildings. Front gardens have been abandoned in favour to the local wild scrappy landscape that has been maintained up to the front door. Tools of camouflage within the landscape include reducing number of floors to one storey, placing buildings with a background of mountains rather than building on tops of mountains, colouring buildings with the predominant colour of the surrounding landscape.

Fontana (1979) complained that because of Tucson's urban vegetation, if a person were blindfolded in a suburb of New York, brought to Tucson, and had the blindfold removed, she would be unable to tell she was not still in Schenectady, New York (Kennedy and Zube 1991). Jackovics and Saarinen (1978) concluded that Tucson has a definite identity, personality, and 'sense of place.' Saarinen (1988); Hicht (1975) indicated that the abandonment of the oasis image of Tucson is largely owed to the public's growing of environmental knowledge from the 1950s on. In their study, Zube, Simcox, and Law (1986) reached the conclusion that Tucsonans were significantly

positive towards desert landscape than participants from Phoenix whose city, according to Zube and Kennedy (1990) possesses a more oasis-like urban image.

Nowadays, one can drive from the door of residences in Tucson, through the neighbourhood, to the major roads of the city, to one of the interstates that head east or west (I-10), or south (I-19) of the city, to the heart of the desert wilderness and continue to experience the same landscape. In other words, the plants that are sprawling over the vast stretch of the desert one encounter along the part of the road in the desert are the same that are edging city streets, centre medians, and growing in gardens in compositions that echo their actual compositions in the wilderness. The inside of houses are decorated by paintings of desert plants, public as well as private gardens are planted by saguaro, mesquites, ocotillo, yucca, agave, creosote, and desert lilies. Sculptures and fountains in gardens or in streets are inspired by desert motifs (figure 8-27). This dominant desert image of the city had played a significant role in drawing visitors, tourists, and wanderers from all around the globe (Frank Sylvester 1965⁹). The selection of Tucson, in particular, has greatly relied on the 'urban desert looking' atmosphere of the city if compared, for example, with Phoenix, which support a more oasis-like landscape (Jackovics and Saarinen 1978).



Figure: 27, ocotillo is one of the Arizona native desert plants. The plant, as many other desert plants, has been heavily used in urban spaces since the 1970s. The photographic survey the author did in Tucson (1999) is evident that Tucson urban landscape is in harmony with its surrounding desert landscape in term of plantings. The ocotillo is used in neighbourhoods' streets and around buildings (1), in central medians, major roads in the city (2), and found in natural landscapes along highways (3), (continue overleaf).

⁹ Frank Sylvester in the Arid Lands Research Newsletter, No. 17 (cited in *desert resort, Landscape*, 1965/1966 (winter) : 24).



4



5



6



7



8



9



10



11

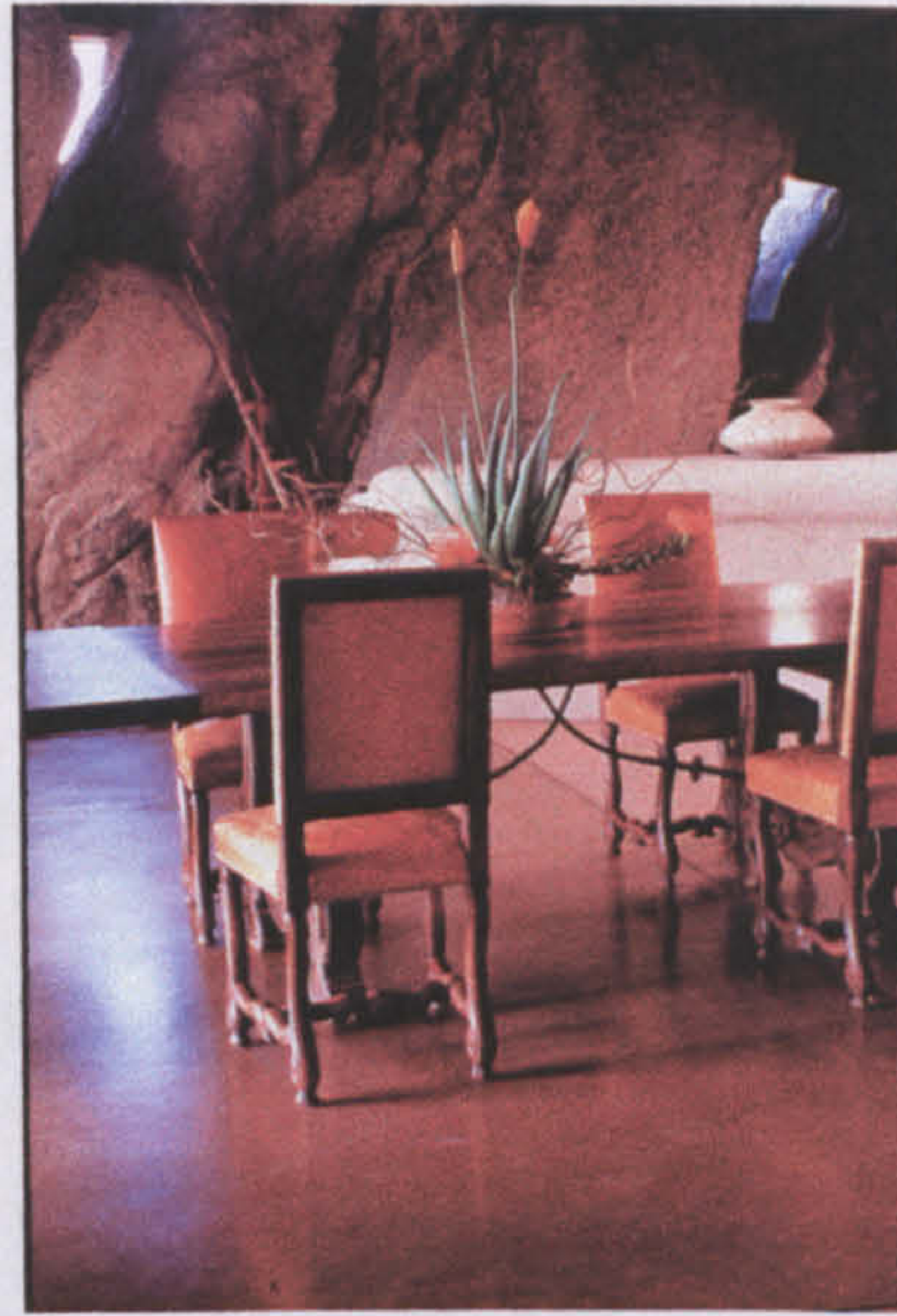


12

Figure: 27 continue, the ocotillo is native to the Arizona deserts like the Sonora desert (4), it was found also as a motif for classic desert painters like John Hilton here (5), and modern painters like Doug Oliver in 'Soaring Over the Sonoran' (6), a model for photography as in Mark Klett's 'desert lightning' (7), and also found in greeting cards (8), 'Kopper Kard Co.' The plant was also found around shopping areas (9), in downtown and around business offices (10), in cemeteries (11), and in private gardens (121). Continue overleaf.



13



14



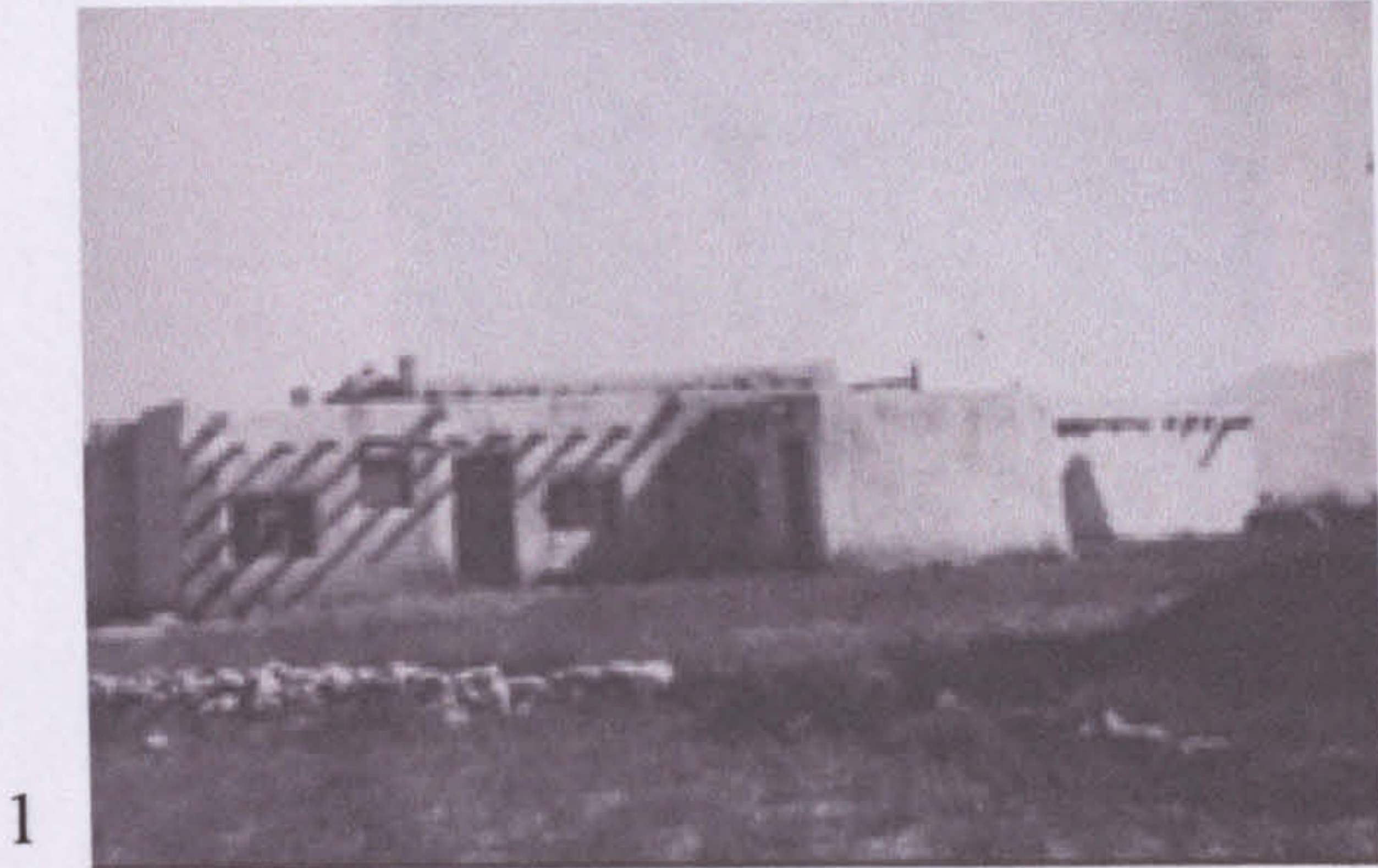
15



16

Figure: 27 (continued), ocotillo shoots are also used, as the Native Americans did in the past, in fences (13). Other desert plants like agave are placed indoor (14), or saguaro in paintings hanging on walls in houses (15), or yuccas in private gardens as plants, sculptures, and fountains (16).

Not only the natural landscape, cultural elements in the desert landscape has also found a great deal of acceptance in the modern Anglo American culture. One of the evident examples is the engagement designers have established between historic Native American architectural style and modern cultural needs (figure 8-28). Another prominent example is the development of *ramada* (a shading structure made of wood). The *ramada* was originally used by the native Americans as a place under which tribesmen gathered. In modern practice, the *ramada* is found in different modern urban spaces as shelter using the same form, structure, and materials (figure 29). Irrigation canals that were part of the Native American historic irrigation system was also adopted in recent history and developed in contemporary urban landscapes to serve various purposes, e.g. irrigation, drainage, and wildlife refuges in dense urban and suburban residential areas (figure 30).



1



2



3

Figure 8-28, Native American architectural style depicted in Detaos House, Collection of Maynard Dixon, photographed by Dorothea Lange 1931 (1). Many Native American architecture became a subject for paintings such as Tonto, national monument (2). Although once rejected by Anglo-Americans, it is becoming the most common motif for modern architectural developments in the Southwest mastered by people like Luis Barragan.



1



2



3

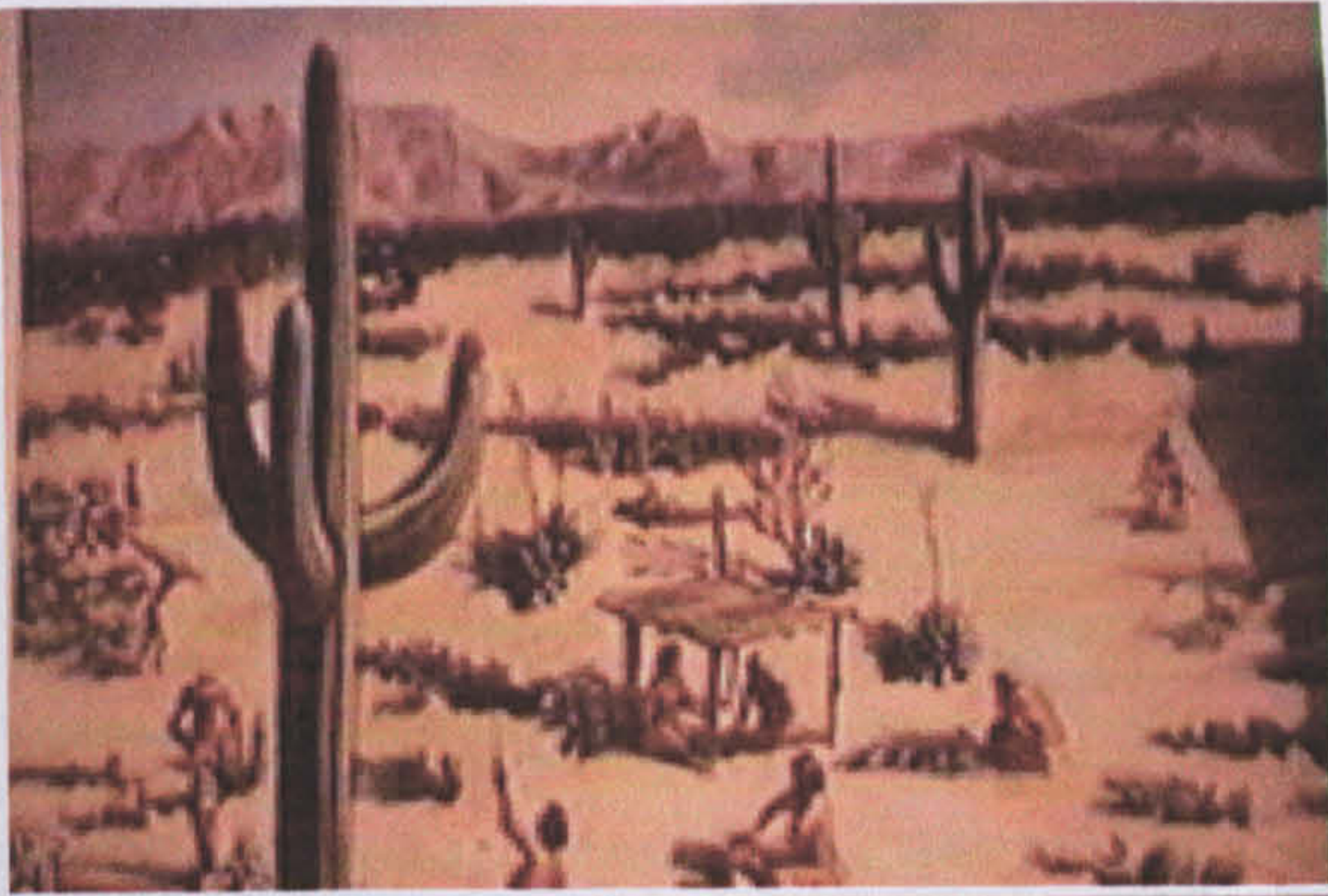
Figure: 8-29, ramada is becoming the typical outdoor shelter structure in Arizona urban open spaces as seen in professional landscape drawings (1), in urban open spaces (2), and in private gardens (3), continue overleaf.

4



5

6



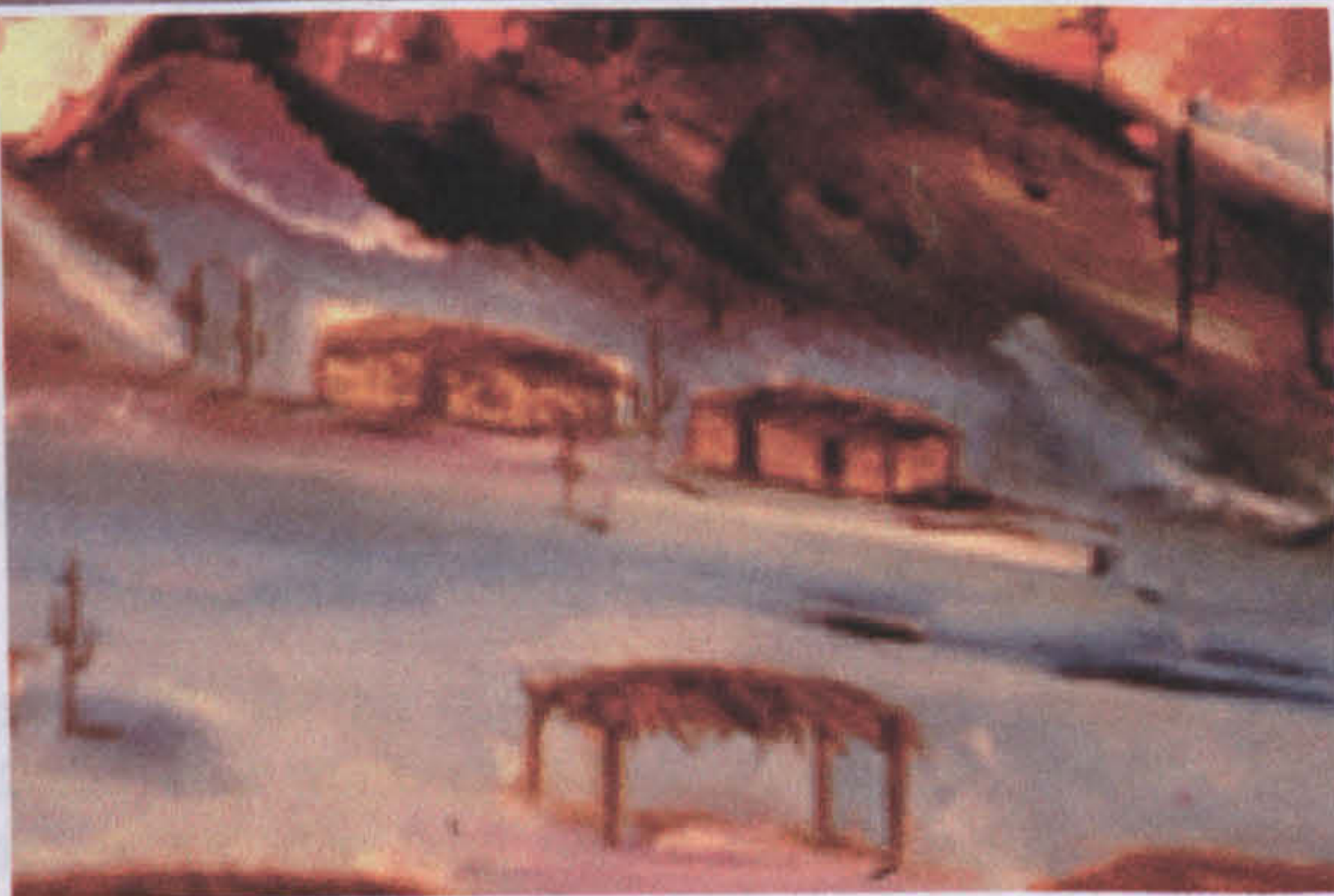
7

8



Figure: 8-29 (continued), the Native Americans were the first who built the *ramada* (Tucson Museum of Art), as presented in photographs (4), drawings (6), and models in history museum (8). The structure has been appropriated as an architectural element in most contemporary Arizonan parks and gardens as in the botanical garden in Phoenix which was built by the Tohono O'odham (formerly Papago) (5). The *ramada* form has been adapted in a steel structure sheltering one of the most valuable historic ruins in the Southwest, 'Casa Grande' (7). Art was the first which fancied the *ramada* as a work of art as had been depicted in many works of artists like De Grazia (9). Modern art continues in portraying the *ramada* as a motif in modern art as in the painting of Michael Gibbons (10), and placed as a life model in art galleries (Gallery in the Sun at Chapel) (11).

9

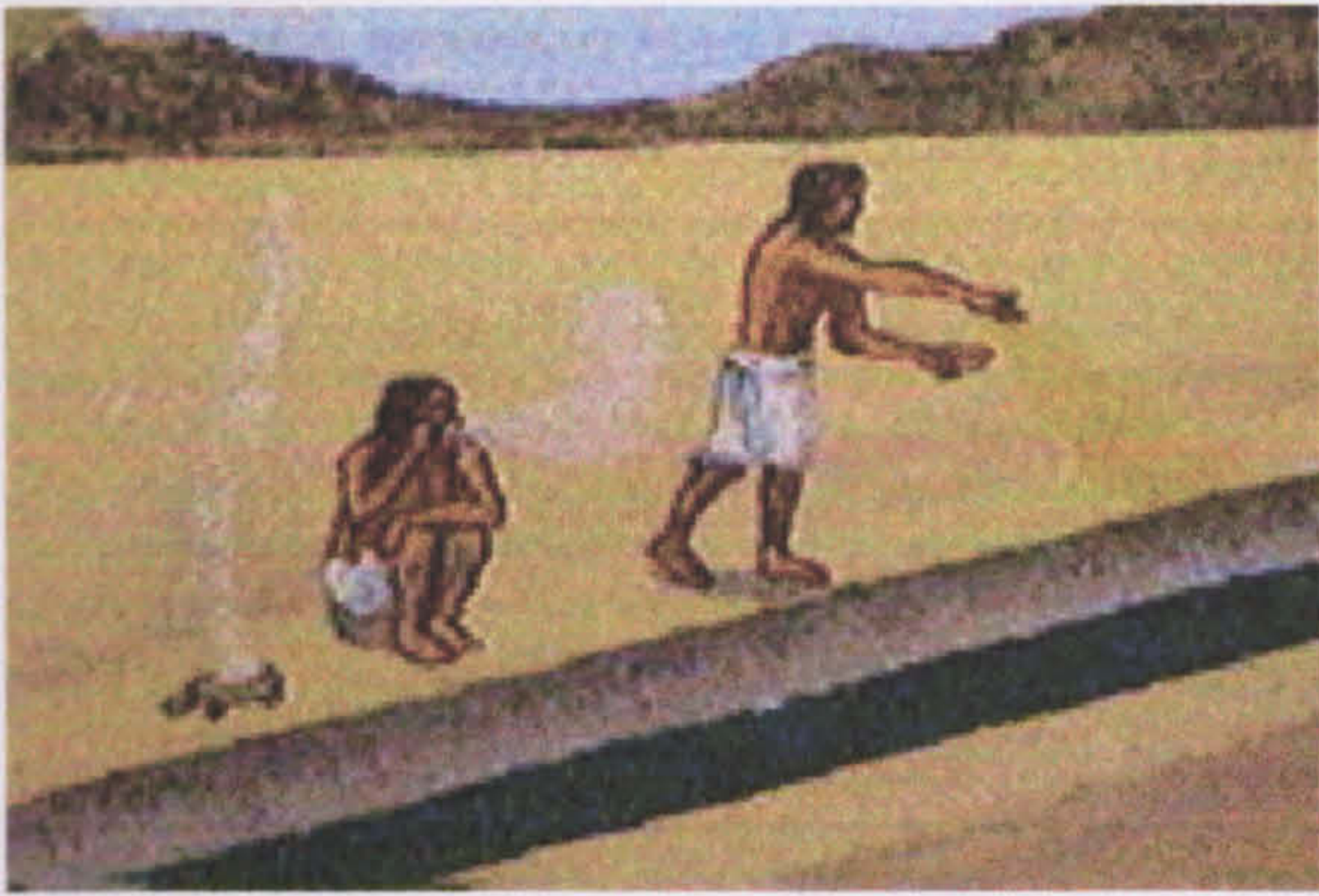


... (faded text) ...

10



11



1



2



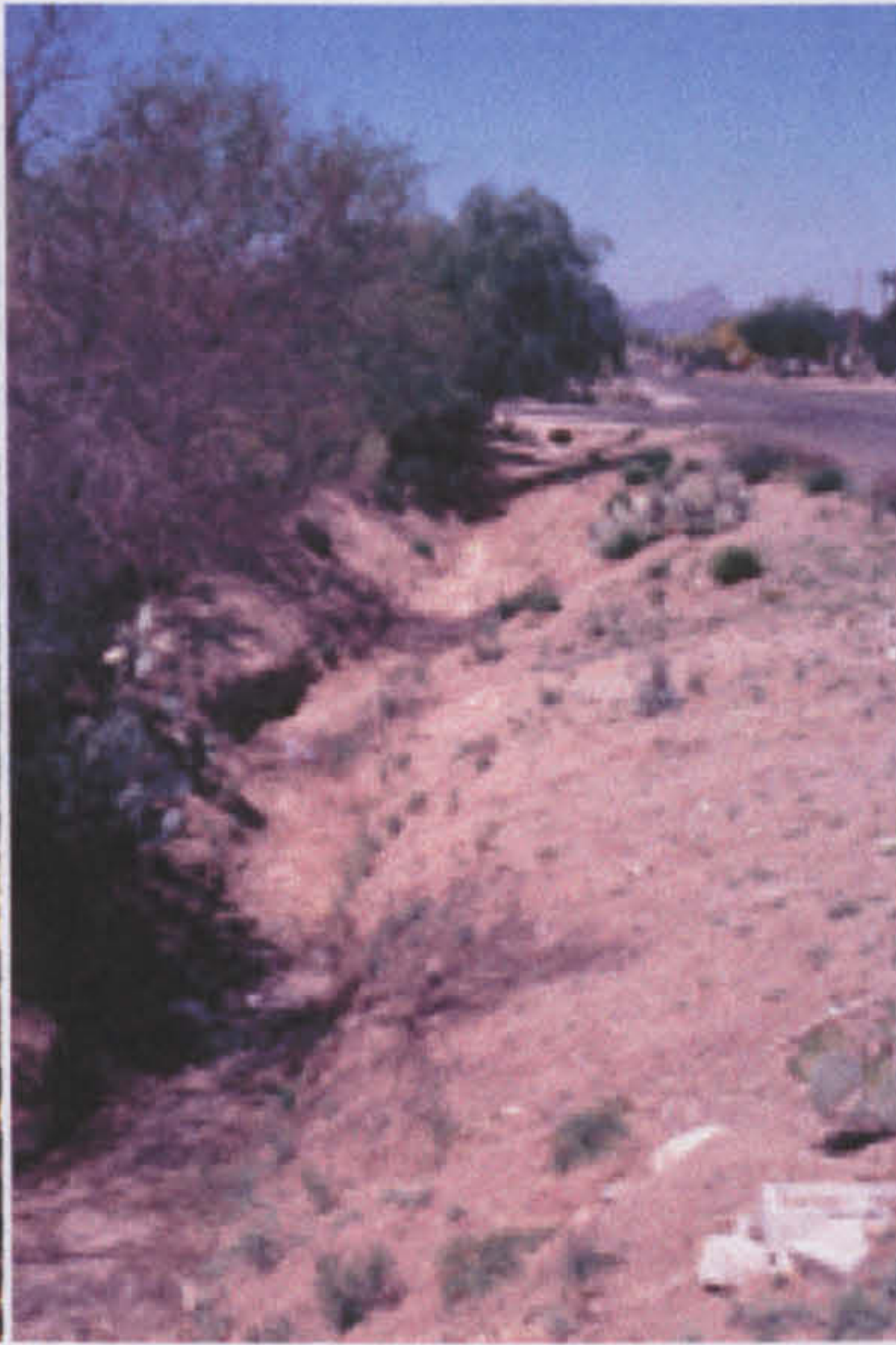
3



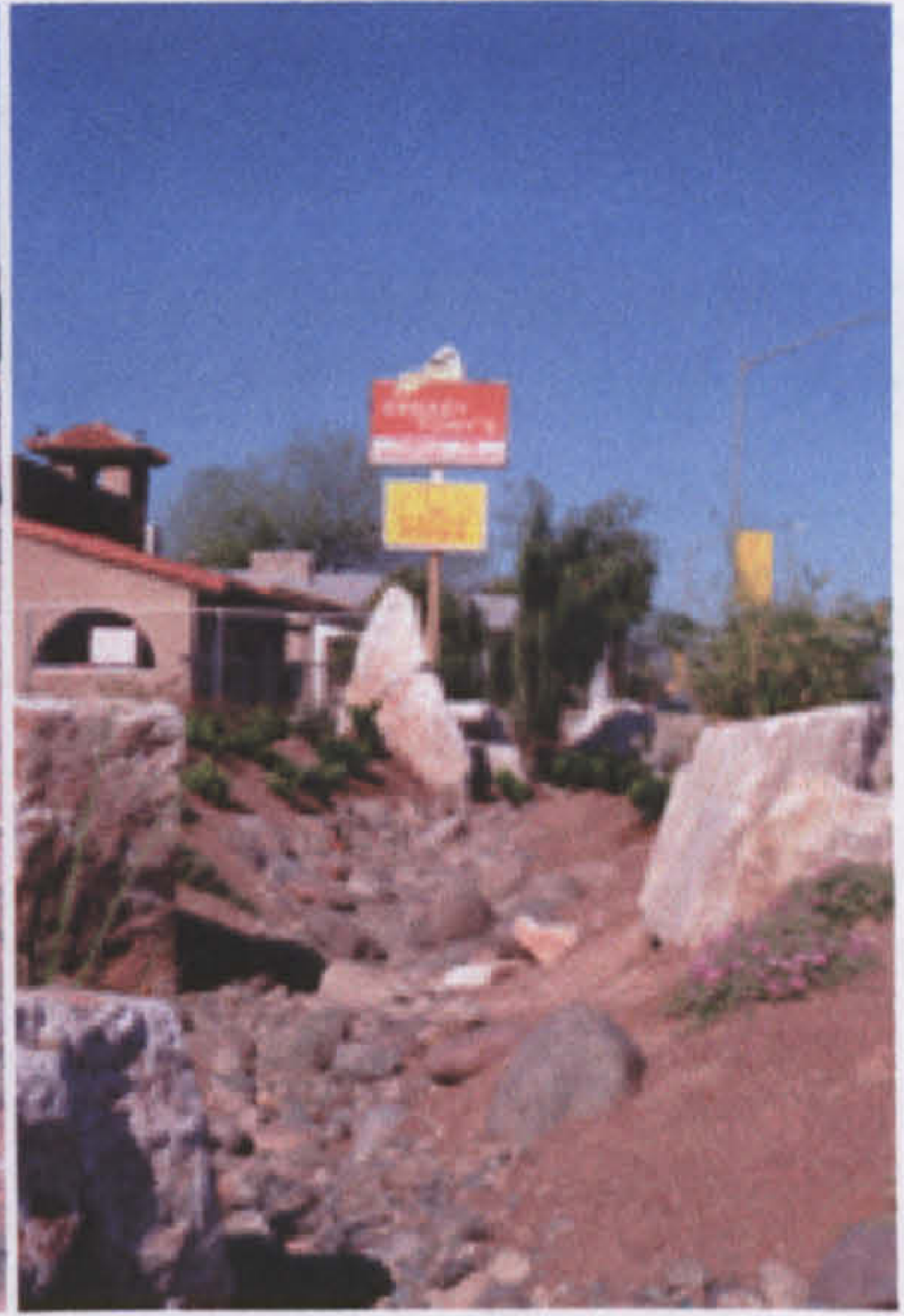
4



5



6



7

Figure: 30, In the historic depiction of the Native Americans, (the Hohokam) excavate a new canal and dedicate their work with smoking, incense, and an offering of pollen (1). Archaeological studies gave clues about when, why and where these canals were excavated as this one at Snaketown-Arizona (2). Early settlers excavated many prehistoric canals, repaired them, and reused them (3). In recent history, many of those canals have been built and lined with concrete as irrigation canals and are still in use in the southern Arizona desert for farming purposes. One of the most astonishing modern examples is the 'Arizona Canal' which followed the same concept of the Native American canal (4). In modern practice, these canals are maintained in urban areas and run through residential areas (Arroio Chico) (5), along streets (6), and around urban developments (7). The use of these urban canals has not only worked as drainage facility, but most importantly as urban open space and a refuge for wildlife to develop within the urban area, e.g. Odaho troto).



9 The comparative study.

Attitudes towards designed landscapes in two desert cities: Medina, Saudi Arabia and Tucson, Arizona.

9. The Comparative Study.

9.1. Theoretical Framework of Natural Perception and Landscape Preference.

Why it is important to investigate societal perception and preference towards natural and cultural landscapes?

The landscape can be viewed through the prism of social, economic, political, scientific, ecological, and aesthetic perspective. For each perspective a landscape within an urban domain is transformed in a particular way to fit an image that corresponds to the viewer's attitudes towards that domain (Meining 1979). Kolodny (1984) maintained that attitudes in any landscape are not only articulated by what people hold of paradigms, but the way people act in a landscape is also a result of this paradigm as well. Despite differences in perspectives, the common facet in the diverse role of change in landscape is the need of the action of control. Control in this sense means the application of different professional means such as design that lead to desired landscapes, management, etc (Nadenicek 1997). From an aesthetic perspective, the control imposed in the landscape cannot be achieved without investigating societal perception and preference of natural and cultural landscapes. This is because irrespective of differences among social groups, the desire of being within preferred landscapes is a substantial objective people usually seek in their living and recreational environments (Zube 1984; Ulrich 1983; Rossman and Ulehla, 1977; Shafer 1973; Shafer and Mietz 1969).

Joan Nassauer (1995) wrote 'the difference between the scientific concept of ecology and the cultural concept of nature, the difference between function and appearance demonstrates that applied landscape ecology is a design problem.' Nature-ecology and people-culture are the two major variables in any landscape planning and design problem relating to aesthetic objectives (Hjort 1979). Thorough understanding of the two variables is a vital task in order to achieve an ecologically benign and culturally liveable landscape (Hough 1995). Nonetheless, 'if we were to make any difference in the real landscape, it is necessary to understand human aesthetic preference' (Nadenicek 1997). Burke (1729-1797) (1998) said 'Man who is a creature adapted to a greater variety and intricacy of relations, connects with the general passion, which direct and heighten the appetite which he has in common with all other animals; and as he is not designed like them to live at large, it is fit that he should have something to create a preference, and fix his choice.' The urge to formulate well-defined perception and preference toward natural and cultural environments does not only satisfy cultural desires (Anon 1965), but also contributes to the establishment of ecologically sound and culturally accepted landscapes. In order to clarify upon this point, an example will be drawn here to answer also the above stated question (top of the page). In a desert city the limitation of natural resources is a major obstacle in the creation of green urban landscapes. Any endeavour to define

such green exotic landscape in this environment can not take place without involving two major problems: i) high cost of initial construction, maintenance, and management, and ii) the creation of unsustainable environment that has a potentially negative impact on the natural environment. Without examining public interest in the landscape, perception and preference of the natural and cultural landscape, such an exotic landscape would seem to be the only option. On the other hand, the investigation of those inquiries could introduce alternative options especially in cases when the public shows a positive attitudes to these alternatives, e.g. urban desert landscape. In such cases, these alternatives can be programmed in a way that avoid the above mentioned problem and creates economically and ecologically benign urban landscape and contribute to the conservation of the natural landscape.

In their study, Kaplan and Herbert (1987) asserted that any attempt to gain a full understanding of the visual relationship between people and the physical environment could not be achieved without covering both, preference and perception. What makes this mutuality remarkably necessary is that people are likely to reason their emotional response to the landscape more in landscape perception assessment. Landscape preference assessment establishes two major trends of response toward the landscape: i) like and ii) dislike. Landscape perception explains to some extent why different groups in a particular society like or dislike certain settings in the landscape (Kaplan and Herbert, 1987).

9.2. Landscape Preference.

Landscape preference is the study of the response of different social and cultural groups toward particular settings in a landscape expressed solely in preference, i.e. how different are different social groups in terms of like or dislike of a landscape? Landscape preference is part of social behavioural studies that derive from social and psychological research, which are of quantitative nature, they set models that are exchangeable, reusable, and computer-able. Landscape preference has also been a subject for numerous researchers in the field of landscape (Palmer 1997; Zube 1984; Shafer 1973). Its history can be traced back to the time when coding and management of natural scenic landscapes became a major issue in 1950s (Lamb and Purcell 1990; Law and Zube 1983). Legislation gave rise to a new research body known as landscape preference (Terry 1990; Sarinen 1976). In the planning process and management of public lands in the USA, visual considerations referred to as visual resource management (VRM), developed by the U.S. Bureau of Land Management, (BLM), has progressively been gaining acceptance since the 1970s (Miller 1984). On the other hand, the procedure of this methodology has been criticised for being too mechanical and discriminative

(Laurie 1975 cited in Miller 1984), whilst historically, others like Kaplan and Herbert (1987) and Purcell and Lamb (1998), considered it as a relatively good predictor for landscape preference.

The aim of Landscape preference studies range between conservation of aesthetically valuable landscapes (Godlovitch 1998), to defining and measuring public's preference toward aesthetic values of such landscapes (Zube 1984). The focus in the later is mostly devoted to cross-cultural differences in landscape preferences in both urban and natural landscapes (Newell 1997; Walter and Savasdisara 1986). In studies that have adopted 'inter-groups comparison,' different characteristics of cultures and sub-cultures are contrasted with the major schematised variables of a landscape. The objective in most of these studies is to correlate cultural and sub-cultural variables to landscape preference. Researchers from different professions approach the field with different objectives, methods, and conceptual understanding (Vining and Stevens 1986). Despite its multi-disciplinary nature (Saarinen 1976), some rare studies have been carried out by teams of diverse professions, e.g. (Zube, Somcox, David, and Law 1986). On the other hand, there is some vagueness in how each profession interprets the results of its studies (Palmer 1997). For works done by planners, landscape architects, and natural resource managers, such studies draw on principles of visual aesthetics and landscape design, ecological theory, and biological resource management concepts (Zube 1982).

One of the most criticised aspects of this research body in the field of landscape is that the aim in most studies does not go beyond identifying such relationships, i.e. society versus natural and cultural landscapes. In many cases, reasons for these correlations are not investigated further (Ulrich 1977). Another flaw in this field of research is that most studies in landscape assessment have overemphasised the empirical part while theories are poorly developed (Zube 1982). Zube, Sell, and Taylor (1982); Saarinen (1976) referred this to such studies being diverse in their disciplinary orientation and contain diverse theories that are imbedded, but not always explicit. The interdisciplinary nature of this research is attributed to the data being generally collected by various methods and from different sources especially in cases when qualitative methodologies are jointly embraced. Examples of such methods and sources of information are personal observations, historic memories and narratives, literature, and art. Literature and art, have long been recognised as rich sources of information on local images and landscapes that give reasonable predictions on landscape preference (Jackovics and Saarinen 1978; Lowenthal and Prince 1976). It has been a consensus among researchers that there is a substantial need for a general theory that would unify the conceptual and methodological approaches of visual landscape assessment (Trent, Neumann, and Kvashny 1987; Zube 1984)). On the other hand, Zube (1984) highlighted some of the problems of on going research methodologies in this area, which included: 'the relative neglect of humanistic

studies of landscape and landscape meanings; the absence or according to some reviewers the multiplicity of conceptual and theoretical bases; and the need for a general theoretical framework.'

9.3. Landscape Perception.

Landscape perception has been a focus of research in the field of landscape since the 1970s (Palmer 1997; Terry 1990; Law and Zube 1983; Saarinen 1976). 'Perception is the term given to the neurophysiological process of the reception of stimuli from a person's surroundings' (Simmons, 1993). Landscape perception as a study is a measure of the way people perceive a landscape. In other words, such studies predict values particular settings in a landscape and investigate the reflections of these values on the senses, emotions, language of particular groups in a society. When one rates natural scenery as aesthetically pleasing, it implies that an individual possesses a positive sense that might invoke a positive emotion for the scenery's aesthetic characteristics, which collectively can be expressed positively in language. In such a case, the expression of senses and emotions and interpretation of these senses is a representation of a personal stand for particular setting in a landscape. Following the scientific notion that assumes 'every event has an identifiable cause and that a particular stimulus will, under given conditions, produce the same response from people' (Simmons, 1993) would support the validity of landscape visual assessment as a reliable indicator of people's perception of the landscape. In landscape perception studies, the chief objective is to examine the significance of various social and cultural variables that might influenced the formation of such responses to a landscape.

It has been argued, on the other hand, that quantifying the qualitative values of natural environments is dangerous ground (philosophically and methodologically), for such research invites the criticism of those who proclaim 'Beauty is truth, truth is beauty-that is all you needed to know' (Shafer 1973). This argument is disputed Shafer (1973) who differentiate between the 'sharp distinction between a study of the process of aesthetics as a kind of human reaction, and the creation of aesthetic as an environment.' In addition, the natural landscape is not a monopoly for the elite anymore as it was the case during the romantic period. Management of natural resources is a top priority for most local authorities in cities today when the public at large has a powerful role in the process of decision making.

Patrick Miller (1984) argued that landscape perception can be briefly expressed in brief by landscape preference. Kaplan and Herbert's (1987) concluded that difference between landscape preference and perception is paramount and one does not mean the other. Thus the investigation of preference with out perception could not provide a complete analytic study that would lead into understanding

and justifying cross-cultural and sub-cultural differences in relation to landscape. Miller (1984), on the other hand, noted that differences among landscape preferences are not as sharp as they are among perceptions. With landscape preference, participants do not need to involve more than the tool of selectivity in terms of like and dislike. Landscape perception on the other hand, is more complex and involves personal investigations in the self and what this self has historically inherited and added to in terms of feelings, sentiments, knowledge, experiences, memories, meanings, etc., in addition to the degree of consideration of each of these factors in each perceptual experience (Smith and Bond 1993).

Jesse Drew (1995), for example, described his way to the Dann's ranch on I-80 as follows:

'with the glittering gambling citadels of Reno in your rear view mirror, I-80 unfolds before you, stretching out upon the barren high plains of the State of Nevada. . . . It took a few days of wandering around the Dann homestead to adjust to the immensity of the landscape. It took me that long to adjust my field of vision to the great distances between visual objects on the horizon.'

To elaborate upon this excerpt of Drew's, the questions Kathy High (1995) raised in a landscape dialogue with Rich Prelinger, Liss Platt, and Jason Livingston would be paraphrased here:

1. How personal sentiments, knowledge, experiences, memories, etc., shape an individual's interpretations of familiar/alien landscape?
2. How does one familiar landscape feed into the perception of another alien landscape?

The answer to these two questions is not a simple task, however, researchers increasingly believe that individuals possess different psychological entities that feed into different perceptive reactions toward various visual stimuli (Simmons 1993). For an individual with little education, for example, such change in the landscape does not trigger multiple feelings and reflections. For others who have a higher level of education, this might not be the case. But if we assume that an artist, ecologist, or landscape architect has been through such an experience, the impact of such experience would most likely be more intense in response to the phenomenon of change.

Perception, as Zube and Pitt (1981) concluded, is an acquired behaviour; the criteria for which are attained from peoples visual and sometimes physical interactions with their environments. They implied that people's perceptions of the environment, i.e. from country to country, differ as a result of the formation of 'cultural perceptions.' From the scale of individuals to social groups to a society, incremental perceptive reactions constitute a culture that in most cases differ along the same scale (Simmons 1993). Nevertheless there are basic generalities that are common amongst diverse cultures, e.g. common positive perception toward naturalness of landscapes (Kaplan 1978).

Donald Appleyard (1973) identified three major perceptions in the urban environment as: operational, responsive and inferential (Appleyard, 1973). Operational perception deals with the recurring features and events in peoples realm that are encountered on daily basis. It is more concerned more with functionality than physicality of visual details. Traffic signs, endless lines of light posts, and road intersections are 'landmarks that orient our urban behaviour' (Lynch, 1960; Rowe 1993). These landmarks became part of the operating program that in-order to function correctly need to be perceived as intellectually rather than emotionally correct. This is why such communicative stimuli leave no memories; their job is to direct urban life and not to be remembered.

Secondly within the operational perceptual process, the search for distinctiveness among the encountered images draw the attention toward the new or changing images. Contrary to the operational perception that deals with fixed images in the environment, responsive perception interacts with the new or changing elements in a more conscious manner (Palmer 1997). Details here are interesting and may be distinguishable enough to be 'imageable' not only by the scanning eyes, but very much by the conscious brain that attract the attention and lead into further interactions.

Thirdly is inferential perception which is determined by previous experiences or acquired knowledge of the environment around us (Appleyard 1973). Sims (1979); ibn-Khadoun (1981); and al-Takriti (1994) assert that previous environmental generalised and specialised experience contributes the formation of precise images of new settings. This happens in the process of perception when we match new experiences with expectations derived from our previous experiences or informational images collected from friends or inspired by media. Within any perceptual process, images pass through sieving operations, a necessary tool that simplify complex and numerous images. This tool include operations, Sims (1979) categorised as, 'screening images which are not too significant, normalising those which are ambiguous and attending to those which are significant in terms of our expectations.' The last category is the one, that finds potential mental recognition and involve manifold emotional senses that range between admiration and dislike. What instructs such perceptual judgement is a group of criteria that include the categories of knowledge, standards, and values, against which collected experiences are judged. Without knowledge, images could not be classified, without standards meanings could not be inferred, and without values clear responses could not be attained. Thus, the firm claims of these criteria, the more precise the perceptual judgement would be. On the other extreme, in cases when none of these criteria are facilitated in the perception of unfamiliar landscape, for example, the perceptual process would yield, most probably, 'incorrect inferences' (Sims 1979).

9.4. Stimuli in Landscape Perception-Preference Studies.

Assessment Methods of landscape preference are diverse and differ in accordance with the purpose of each individual study (Palmer 1997; Hodgson and Thayer 1980). Some studies are merely set to examine methodologies used in landscape preference-perception, e.g. Shafer (1973) and (1969). Others investigate stability of perception over time, e.g. Palmer (1997); Zube (1983), and the validity of alternative surrogates for representing landscapes, i.e. on-site or photographic representation of the landscape, in visual landscape assessment studies, e.g. Scott and Canter (1997); Hull and Stewart (1992); Trent, Neumann, and Kvashny (1987). Methods of landscape visual assessment also vary in the type of landscape representational medium used. The two major categories include: i) the use of visual stimuli in which participants are exposed to photographic representations of landscapes, e.g. photographs/slides, of particular schematised natural and/or urban settings, and ii) on-site trips, through which participants are exposed to the actual pre-designated natural and/or urban settings (e.g. Aoki 1981). In both cases participants are asked to evaluate their perception and/or preference toward landscapes.

Rabinaowitz and Coughlin (1970) highlighted that the disadvantages of field test are that non-visual stimuli distort the perception of observers. They found also that participants commented little on the 'Photo Test' whereas their comments on the 'Field Test' were remarkable, however, most of which were devoted to other sensual observations like noise and smells (Rabinaowitz and Coughlin 1970). Most studies support the validity of using photographic representations of landscape as visual stimuli in landscape visual assessment (Ulrich 1977). The advantages of using photographs/slides as landscape representational media involves concerns related to cost (Lambe and Smardon 1985; Law and Zube 1983), control (Hull and Stewart 1992), time (Lambe and Smardon 1985), and practicality (Shuttleworth 1980).

Trent, Neumann, and Kvashny (1987); Steven Shuttleworth (1980) concluded that no radical differences exist in results obtained in landscape-visual-assessment studies facilitated by photo-based and on-site stimuli. In contrast to Shuttleworth's argument (1980), Hull and Stewart (1992); Scott and Canter (1997) doubted the validity of photo-based landscape-visual-assessments for the differences between on-site and photo-based scenic beauty ratings they found are caused, in part, by differences in meaning, novelty, and mood between the stimuli. Hodgson and Thayer (1980) indicated also that presentation quality of photographs/slides used is another experiential bias that separates photo-based different from on-site stimuli. From another perspective, Scott and Canter (1997) asserted that researchers ought to distinguish in their objectives for visual landscape assessment between 'evaluation of the content of a photograph and an evaluation of the experience of the place as if the person was actually there.' In addition, Hull and Stewart (1992)

concluded that photo-based assessment seems to be reliable with no sharp contrast in participants' perception over time (six months).

When (Rabinaowitz 1970) considered cars, houses and roads as flaws in the landscape scenes used in the landscape visual assessment, Vining, Daniel and Schroeder, (1984) find the characteristics of these artefacts a necessary 'contribution' in the composition of the assessed landscape scenes of the forested residential developments. Rabinaowitz (1970) highlighted that participants do not differentiate between preferences for 'use' and for 'abstract attractiveness' in visual assessment exercises. It is more likely that people tend to think about landscape preference without including their role as users of a landscape bearing in mind, for example, their direct recreational utilisation of the place. It has been found that most studies assume that participant brain storming during assessment exercises would rank their preference for a landscape in terms of the following questions:

'How would he enjoy the scenery of this landscape?'

'How would he rate this site as a place to pass through?'

'How would he like to use this area for recreation?'

'How would he like to live here?'

Rather than:

How would he see this place as better without signs of cultural presence?

Purcell and Lamb (1998) concluded that human intervention in the landscape is not the only agent of bias affecting preference. Type of vegetation and its structural integrity and the way these factors do or do not interact with the density of the vegetation formation and the extent of the view within an urban domain play a more significant role in influencing preference.

Black and white photos (Shafer 1973) have been heavily used in landscape-preferences studies, where colour seems to be an important factor in the assessment (Cary and Williams 1998; Yang and Brown 1992; Walter and Savasdisara 1986). On the other hand Shuttleworth (1980) pointed out that, in contrast to colour photographs, black and white photographs yield remarkably different results if compared with on-site landscape assessment. Colour photocopies have also been used in landscape visual assessment for easy preparation and low cost, have however, ranked as an inappropriate surrogate for the landscape in landscape perception-preference studies (Lambe and Smardon 1985). One of the other newly adopted techniques in visual simulation is 3-D stereo dynamic graphics (Ishikawa, *et al.* 1998). This technique, however, has essentially been designed to measure public's perception of un-implemented landscape design. The basic limitation of this technique is the limited

number of evaluative variables; in Ishikawa's study, for example, size and location of open space were the only investigated values.

9.5. Factors Influencing Perception and Preferences for Natural Landscape.

Natural scenes are a function of a group of characteristics that contribute dramatically not only the composition and final image of a landscape, but also the affective experience that inform purpose in the landscape. In forestlands, Vining, Daniel and Schroeder (1984) presumed a recreating or a passing visitor is the one who to a great extent notices and enjoys the scenic beauty of forestlands, whereas residents have in addition to scenic quality, other values and characteristics. Examples of these characteristics are naturalness of the scene, the scale or extent of view, variation in roughness of surrounding topography, the presence of water, intensity, size and form of floral cover, and scale of visual pollution (Cary and Williams 1998; Purcell and Lamb 1998; Rabinaowitz and Coughlin 1970). People engage all senses in the landscape to capture and enjoy some or all of these characteristics. These senses inclusively determine the degree of acceptance of different places in different landscapes at different times and seasons. Nevertheless, people rarely choose places in a landscape to satisfy only a particular sense. Rather, they decide the purpose of being in a landscape by responding to a totality of personal emotional, cultural, physical needs (Cary and Williams, 1998). In accordance, the degree of satisfaction of all senses instructs the degree of likeness or dislikeness of a landscape, i.e. 'beautiful' green landscape might not be enjoyed if, for example, accompanied by an awful odour. For the majority, the selection of a landscape is a decision have to be made, for others, it is a chance to check out a different landscape and appreciate the unique flavour of 'different' in whatever they encounter in this landscape (Meinig 1979). Nonetheless, the second group would ultimately end up with a decision whether they liked what they encountered of a different landscape or not. This decision, again, would depend on the degree of a personal acceptance and rejection of the landscape. The rejection of a landscape can be caused by a dissatisfaction based on a single sense, for example and unpleasant smell or due to feeling of uncomfortable because of weather conditions. Central Park, Manhattan's most popular designed space loses its charm after dark when it become a theatre for criminal behaviour. Al-Arba'ain lagoon is in the most busy part of the city of Jeddah, yet the foot path surrounding it is often deserted because of the terrible smell of the lagoon. Al-Henakiah valley is one of the most spectacular natural scenic landscape in Medina region (100 Km to the east of Medina). It has been historically targeted for picnic activity since the seventies, however, in summer, the valley becomes the least preferred place for picnics due to the extremely hot weather and annoying insects. There is a connection between security, mastering of dangers, sense of comfort which may be related to appreciation of the

landscape (Sandström 1975). It can, therefore, be concluded that aesthetic perception and landscape preference is a function of satisfaction of a gamut of senses (Sandström, 1975).

In most research embracing comparative landscape preference studies, excitement and liking have not been distinguished from each other. Excitement is provided by rare encounters with non-familiar landscape and is different from liking that in most cases depends on thorough knowledge and the basis of long experience. Excitement is an ephemeral reaction that does not necessarily imply the preference for this non-familiar landscape. Such reaction is subject to change if re-judged on the basis of longer time spent in a landscape. For visitors or tourists, the feeling of excitement they experience in a non-familiar landscape does not probably necessitate a decision of preference. Mark Twain attributed visitors' view as 'artificial, self-conscious, above all ignorant' for the reason they look for the outer view i.e. 'scenic value' and seldom get concerned with the core, its system and process (cited in Lowenthal 1968.; Dorst 1991). Tuan (1990) differentiated between the perception of local residents and visitors to a landscape for the reason local residents hold complex attitudes toward their environment derived from their perpetual presence in the environment whereas, visitor's eyes are less critical and more concerned with temporal composition of images. Local residents through daily interaction reveal their attitude toward the environment indirectly through their behaviour, local tradition and inherited knowledge. Visitors are usually attracted by the exotic characteristics of places without being too concerned with everyday details. They tend to be aesthetically evaluative in their environmental perception. In contrast to visitors, locals are less critical about the appearance, but give more importance to quality of life, and practicality.

It has been established that consistency of preference for natural landscape corresponds to consistency in characteristics of an assessed group of respondents (Cary and Williams, 1998). Zube, (1984) categorised forces that shape preference of natural landscape under five main categories: biological, cultural, natural, social, and personal forces. Bourassa (cited in Cary and Williams, 1998) narrowed these five categories into three forces that influence human landscape perception and preference. Biological factors derived from adaptive evolutionary forces, cultural influences including belief systems learnt through direct and indirect experience of the physical environment, and personal forces based on unique psychological and physical needs of the individual human being (Cary and Williams, 1998). In this study, the focus will be given to the two most relative forces; natural and cultural, through which familiarity with and knowledge of the landscape will be discussed to investigate their roles in shaping landscape perceptions and preferences.

9.5.1. The Role of Culture in Landscape Perception and Preference.

In most studies that have adopted cross-cultural comparative approaches to landscape perception and preference, the results are generally conclusive that culture has a profound role in shaping diverse responses to landscapes (Newell 1997; Kaplan and Herbert 1987; Zube, Vining, Law, and Bechtel 1985; Walter and Savasdisara 1986; Zube 1984; Ulrich 1983; Zube 1982; Zube and Mills 1976). Coughlin, and Goldstein's (1970) study revealed contrasting preferences also among groups that shared one culture, background characteristics and almost the same range of age. They affirmed that although preferences between cultural groups are likely to be found to show extreme discrepancies, preferences within a culture are not always consistent. The more varied the social, cultural and urban and/or environmental experiences of respondents, the greater the contrasts expected to appear in their landscape preferences and perception (Balling and Falk 1982; Kaplan and Herbert 1987; Kaplan 1985; Zube 1984).

Ervin Zube (1984) ascertained that it is imperative for research on landscape preference to significantly consider, not only a thorough understanding of the landscape, but also acknowledge the significance of public's landscape experiences, i.e. to consider people as active participants whose diverse culture play a significant role in shaping diverse societal preferences. The intensity of difference in landscape preference heavily depends on the degree of contrast between cultures and landscapes (Zube 1984). Similarities in natural environments, i.e. American Southwest and west Australian natural environment, on the other hand, do not necessarily translate into similar cultural norms with regard to the natural environment. Kaplan and Herbert (1987) and Rose (1991) point out that each culture responds to its cultural values, beliefs, and life style. On the other hand, some studies have yielded comparable landscape preferences among different culture groups when exposed to similar landscapes (Walter and Savasdisara 1986; Nasar 1984; Zube and Pitt 1981; Zube and Mills 1976; Sharfer and Tooby 1973; Shafer 1973, 1969; Sonnenfeld 1967). Ibn-Khaldoun (1981) maintained that what causes city dwellers to develop a high probability of common visual perception toward urban and natural landscapes is the simple fact that they share similar environments.

People's diversity of landscape preference and perception is clearly a result of numerous factors. These factors are not only related to diversity in social groups, but also in landscapes as well (Schama 1995). Rachel Kaplan (1991) highlighted, for example, that people usually avoid being in confusing or 'illegible landscapes' that allow minimal chances of exploration and discovery. In some studies historical, religious, economic, and/or social significance of landscapes have been correlated to landscape perception and preference (e.g. Jackson, 1957; Lowenthal and Prince 1965;

Duncan, 1973). A common insight of all these studies is that landscapes hold diverse values for each culture. Scenes often lose their attractiveness when seen by a person of a different culture. This justifies why the theory of visual-landscape-assessment has had to give due attention to understanding of human diversity and landscape interactions in both natural and urban contexts (Zube 1982). Landscape appreciation has evolved following the establishment of cultural 'cults' (Sandström, 1975). Religions, for example, have historically implanted cultural rejection of particular species of fauna, flora and sometimes landscapes. The innate Christian dislike of snakes is ascribed to the expelling of Adam and Eve from paradise. The *Al-Gharkad* tree was cleared to extinction fourteen hundred years ago back to the border of north Arabia because of a particular religious belief. The consideration of ecological aspects in landscape design and planning must be accompanied by consideration of human values, cultural conceptions of nature, and aesthetic preferences (Nadenicek 1997; Higgs 1994).

One of the major issues that has been found to pose a profound influence on landscape perception is the degree of education in environmental values. From an environmental point of view, Kals, Schumacher, and Montada (1999) assume knowledge to be an essential factor in the establishment of appreciative behaviour toward the natural environment. Ervin Zube established in many studies how ecological knowledge among the public yields positive perception toward natural landscapes. In the Southwest, for example, the public has become more protective of traditional and native desert landscapes and places which have symbolic or community connections to their own personal or group identity (Sell and Zube 1985), and are supportive to non-commodity land-uses (Zube 1998; Zube and Sheehan 1994). Zube (1983) noted how Egyptian ecologists in contrast to the public, who are largely illiterate in terms of environmental issues, perceived desert landscape positively. In another study, Zube and Sheehan (1994) suggested that perceptions and attitudes of professional resource managers are often extremely different from those of general public and users of riparian landscapes. The literature suggests that in most studies on landscape perception undertaken with American social groups, environmental education programs outweigh, from the public's point of view, all other forms of education influences.

Despite noticeable and increasing interest in landscape-preference and perception researches, none has been undertaken on Arabian culture, and with the exception of Zube *et al* (1985)¹, neither has a study been conducted to contrast Western versus Arabian groups. Yu (1995); Yang and Brown

¹This study specifically investigated 'potential differences between Arab and American perceptions of residential quality and urban sound.' The study included no assessment of cultural perception and preferences of urban or natural landscape.

(1992); and Walter (1981) noted how little has been done so far on Far East cultures in comparison to what has been undertaken on Western cultures in landscape-preference research. In the Middle East, this research subject has not yet grown to the level that could form a concrete base for practical applications, nor to create a basis for future studies. Environmental psychology has not been a major focus of research in landscape, nor in social and cultural studies in this part of the world. It is argued that the principal justification for this is the idea that the desert is not green, has a harsh climate, and un-desirable scenery. Although a number of studies on perception of nature in arid cities are not comparable to the number on temperate landscapes, there is a growing literature on desert cities in the United States and Australia (e.g. Zube and Sheehan 1994; Kennedy and Zube 1991; Garduno 1988; Zube, Simcox, and Law 1986; Zube, et al. 1985; Kearins 1978; Jackovics and Saarinen 1978; Saarinen and Cooke 1971).

9.5.2. The Role of Naturalness of the Landscape in Landscape Perception and Preference.

What stimulates onlookers' simultaneous recognition of 'natural' scenery are the qualities of distinctiveness and uniqueness, that often sets landscapes apart, like Yellowstone and Yosemite (Lowenthal 1968). When such qualities are lacking in 'natural' landscapes, humans promote initiatives through management and design; order the scenic experiences by education; and channel the movement through a landscape setting to cross unique natural perceptual stimuli by design. Let us assume, that in such cases, the onlookers' actions of observing become conscious and to some extent pretentious rather than spontaneous (Hjort 1979). This group of onlookers would rarely stick to the designed route, but most probably would get familiar with what designers have provided of intersections with natural events, and soon go off the track searching for something different. For most it is 'the something' that has not probably been seen by others, or may be a solitude area that has no sign or sight of man (Budiansky 1995). This is what researchers call 'the value of naturalness' of a landscape (Druse 1994).

In most studies on perception and preference in landscapes, the order of landscape preference is (most to least preferred): rural, suburban, and urban landscape (Rabinaowitz and Coughlin 1970). It has been affirmed that the degree of human influence on a landscape is typically a significant factor that negatively affects people's perception and preference (Purcell and Lamb 1998; Zube 1998; Lamb and Purcell 1990; Ulrich, 1983; Hodgson and Thayer 1980; Kaplan 1978; Herzog and Kaplan and Kaplan 1976; Shafer 1973, 1969). Newell (1997) concluded that 61% of respondents of three different cultures considered natural environments as their favourite places. In Miller's study (1984) mountainous, contained, and spacious landscapes were rated as the most preferred, whereas the least

preferred landscapes were the undifferentiated landscapes and the ones that depicted human-made elements and little vegetation. Kennedy and Zube (1991), also, affirmed the role of vegetation in enhancing 'sense of place' by according unique character and identity to places at both the city and neighbourhood scale.

The value of 'naturalness' in the landscape has its history in literature. In the natural environment, *parallelism* is the similarity in the physical characteristics of natural habitats that cause similarity in types of living organisms' adaptation to those particular characteristics (Olin 1994; Kingan 1920). The ecological rule of thumb that permits the presence of particular living organisms, including man, in a given habitats is called 'environmental preference.' Certain species prefer certain environment in order to survive. In deserts, extremely high temperature, high aridity, soil permeability, and rugged terrain allowed certain species of fauna and flora to survive after developing particular adaptation patterns to such conditions. In Darwin's theory of evolution, in the battle of survival living organisms develop adaptable responses that allow a high probability of survival. Lockard (cited in Kearins 1984) suggested a genetic relationship between each ecological setting and each individual within an animal population. A species development is governed by its natural environment and the degree to which it fit for a particular ecological niche. Such arguments are historically true in the case of physical demands, but, does such argument stand in the case of emotional needs?

'The biophilia hypothesis' (Wilson 1993) claims that humans possess a biologically based attraction to nature and that their well-being depends, to a great extent, on the relationships with the surrounding natural world (Kals, Schumacher, and Montada 1999). A similar line of thought is found in: Appleton 1996; Orians 1986; Kaplan 1976; supported by Newell's study 1997). Orians (1986) argues that the landscape preference that underlies human emotional behaviour owes a great deal to evolutionary biology. He has established this theory as the 'savannah hypothesis' that attributes humans' preference for savannah-like landscape to the evolution of *Homo sapiens* in these landscapes prior to 100,000 years ago.

Mediaeval literature on natural beauty does not mention wilderness due to an inherent feeling of lack of security and safety beyond cultured landscape (Sandström, 1975). Early civilisations like that of ancient Egypt on the Nile river, Mesopotamian on the Tigris and Euphrates rivers, developed in life supportive environments (Clark 1970). In the modern world, this formula takes a more intellectual form due to the tool of appropriation man has developed to successfully change his environment, which enable survival in what were historically unacceptable environments. When man in the past

adapted the natural environment mainly to fit his living comfort zone, man of the modern world need also to adapt this natural environment to fit his new aesthetic values as well. In its modern form humans has a common desire to live within aesthetically acceptable environments or what Pinker (1997) called 'park-like landscape,' constituted of well-mown lawns and equally spaced trees and potentially overlooking a prospect. Thus, the triumph man realised in controlling nature gave him the chance of selecting what he desires of environments around his immediate environment (Druse 1994).

On the other hand, these modern desires and landscape preferences have their own cultural stimuli. Much of the experience an individual acquires in a particular landscape in which he/she was borne, grew up, lived, worked, entertained, and recreated are incremental factors that contribute in the building up of impressions individuals hold about an environment (Kaplan and Herbert 1987). On the other hand, duration of experiences alone does not guarantee positive correlation with consistent preferences. Social and emotional events that accompanied these experiences and formed memories' are also substantial factors that can lead to a range of variances and consistencies among the preferences of a seemingly homogeneous social group. Nevertheless, it is widely believed that aside from personal life styles, the natural environment influences knowledge, culture, taste and preference of human (Lowenthal 1968). Hjort (1979) highlighted that the environment in which we live during a certain period of our childhood is of considerably greater importance for our aesthetic evaluations than other environments. Early landscapes in an individual's life culminate incrementally in the unconscious as an evaluative reference for all forthcoming perceptual experiences with the environment (Hjort 1979). What each individual develops in their unconsciousness is a form of what theoreticians in this research body called 'familiarity.'

9.5.3. The Role of Familiarity in Landscape Perception and Preference.

Many studies have concluded that various degrees of familiarity with the landscape in general correlate positively with people's perception and attitudes (Zube 1999 and 1984; Kaplan and Kaplan 1982; Herzog, Kaplan, and Kaplan 1976). Kaplan and Herbert's (1987) confirmed that familiarity, in general, is the major factor that influences preference and perception and become more effective when accompanied by 'interest and expertise.' Burke (1797-1729) (cited in Womersley 1998), on the other hand, indicated that 'daily and vulgar use of things bring them into a state of un-affecting familiarity.' This certainly contradicts Miller (1984) conclusion that common landscapes are not always considered less unique than landscapes that occur less frequently. This is due to Miller's definition of familiarity being different to Burke's one. For Miller, common landscapes might look unique and distinctive if viewed by others who are unfamiliar with it. Their likeness in this case is

based on excitement rather than familiarity. For those who inhabit the landscape, excitement is a subordinate value in their daily life conventions. Familiarity, in this sense is what a particular social group knows about a landscape. Without this knowledge, they would practically be unable to appreciate, live, and interact with the landscape (Sims 1979).

Another line of thoughts is what Al-Muqtataf (1921) argued that beauty and ugliness is a constant attribute of any object, whereas perception of this beauty or ugliness is changeable overtime. The factors that change perception toward an object are the result of 'familiarisation of the self' with the perceived object, i.e. what seems unacceptable perceptually at the first encounters might gain positive appreciation over time. An ancient Arabian poet said:

Don't you see that the eye does guide the heart

What ever the eye get familiar with, the heart would simultaneously like.'

(al-Qurtubi 1960).

There are many examples that demonstrate the role of time, familiarity, in the acceptance of a landscape. Merelick (1992), as an example, highlighted in the case of immigrants to Arizona that new arrivals were unable to see the landscape on its own terms, but after a while, they they accepted the place as beloved home. In other words, the Arizonian model yielded what Merelick called 'tracing a spiral path' through which residents reach the core of familiarity with and acceptance of the landscape through spending more time in that landscape. Al-Takriti (1994) asserts that recurrence of a particular activity or action in one's life is one of the effective familiarisation processes that lead into gradual acceptance. Sims (1979) found that duration of direct experience with an environment is not the only key-factor in achieving familiarity toward an environment, viewing new environments through images of past experiences is also important.

9.5.4. The Role of Knowledge in Landscape Perception and Preference.

In 1884, the poet William Wordsworth complained about a proposed railroad that was to be built to the Lake District. His problem had no direct environmental impact, but he considered the trains as means that would 'bring trainloads of untutored sightseers who were not equipped to value what they were seeing' (Budiansky 1995). The most fundamental talent that has facilitated man's long-term survival in his environment is his ability to acquire information on nature, both physical and visual alike (Kaplan 1972 cited in Ulrich, 1977). Kaplan (1972) attributes human success in colonising the Earth to the innate desire of learning that led early man not only to collect and learn but also and more importantly to be able to predict future outcomes in similar situations. This implies that human visual senses have been trained by learning from nature. It was necessary for human to learn how to escape from an approaching danger, but he also learnt to recognise beauty in nature. This coding i.e.

danger, mystery, beauty, etc. of the visualisation of nature was necessary for the long-term survival of humans species (Hjort 1979). In modern life, the talent for and behaviour associated with visualisation versus the surrounding landscape is called perceptual and preferential biases (Ulrich, 1977). This is to say, what we prefer visually is not only what is there or what is available visually, but our preferential biases stipulate matching between the characteristics of present objects and acquired information held in the mind. This also means the more information we gain of the visual landscape, the more we enable our perceptual and preferential system to accept and accordingly comprehend. Ulrich (1977) concluded that landscape ambiguity is positively correlated with preferential bias for that landscape. Thus, for man, the knowledge-dependent creature, the more knowledge gained of a landscape, the more familiar it would become, and the more preferred it is likely to be.

This discourse on the relationship between knowledge and landscape preference and perception lead to the question: would an individual appreciate a stereotyped 'negatively perceived landscape' if they gained more knowledge of the nature of that landscape? Kals, Schumacher, and Montada (1999) stated that love of and interest in nature has created two different forms of human-nature relationship. Interest in nature might be expressed as gaining knowledge and exploring issues related to specific natural phenomena. On the other hand, scientific study of nature does not necessarily stipulate emotional affinity toward nature. However, emotional and sensual feelings about nature are enhanced by frequent contacts and experiences with nature. The critical point here is that interest in natural landscapes rationalises certain actions toward nature, such as protective behaviour. On the other hand, cognitive interest in nature might be conducted even in a negatively perceived landscape, whereas such a situation is probably not possible with other groups who base their relationship with nature solely on emotional affinity (Kals, Schumacher, and Montada 1999).

9.6.The Comparative Study: Methodology.

9.6.1. Prologue: Comparative Research.

Comparing two societies investigates i) areas of similarities and differences between societies, ii) explanation of these similarities and/or differences, and finally iii) identification of circumstances under which of these two or other situations, similarities and differences, occur (Rose 1991, cited in May 1997). The analysis of differences and/or similarities also allows highlighting of advantages and disadvantages of a particular situation developed in one of the compared societies. Comparative research, as May (1997) affirmed, is considered worthwhile for the reason that 'in producing findings on the practices of other countries, we are better able to

see the basis of our own practices.’ The most substantial aim of facilitating comparative research, therefore, is to extract lessons and borrow ideas rather than creating or testing theory. A review of literature suggests that projects that adopt comparative research methods deal with this methodology on the basis that borrowing approaches from a similar society often improves the efficiency of the original society. Burke (1998), the 18th century philosopher, suggested that imitating other’s example is a very effectual strategy of acquiring improvements in society. Holt (quoted in May 1997), more over, advised that for research that aims to generate theories on how societies are organised, ‘comparative studies are absolutely essential.’ Nevertheless, However, researchers should not loose sight of the fact that what is appropriate for one society is not necessarily appropriate for another. Each society responds to a particular situation in its own way. Despite certain degrees of similarities in societies’ responses to situations, there are always unintended consequences to social actions that might differ from society to society (May 1997). At the major scale, ethnic and cultural differences contribute to shaping obstacles in applying what seems to be successfully established in another society. At the micro scale, there are always minor differences that in most cases are different to and therefore they are rarely accounted for in research, however they might eventually result in time in serious social conflicts. Analysis of studies needs to be as diverse and as detailed as possible to permit the highest possible predictability of patterns of social responses.

Normal behaviour and norms cannot be studied without acknowledging deviations from the normal. Actually, no social phenomenon can be isolated and studied without comparing it to other social phenomena (Qyen 1990). May (1997) proposed that the potential benefits of applying comparative methods between countries, or what he called (inter-societal comparison), come in an instrumental form. This means comparing two societies implies finding out how each social or cultural setting is performing in a particular area. Rose (1991) defined Comparison studies’ major inquiry as to observe aspects of similarities and diversities among the compared societies and their extent in one field. The second task then would be to explain similarity and diversity; in other words, to answer the question: in what conditions does this similarity and/or diversity occur? This obviously drives the research toward deciding which one is performing positively and which one therefore would need to borrow ideas from the other setting. Teune (1990) stressed that comparing countries in certain fields lead to establishing lessons, how things can be done in an alternative way, rather than merely testing theory. The final phase in comparative study come in the form of recommending areas for intervention. Intervention here means to decide what aspect of a social and/or cultural setting need to be developed, replaced, omitted, or enhanced in order to improve efficiency. May (1997) argued that comparative

research allows a certain degree of prediction of the outcome of the application of a specific program based on the comparative study. This can be achieved by specifying impacts, effects, and consequences of applying a given program on another society.

On the other hand, problems noted in comparative methodologies mainly deal with the researcher and their possession of a full picture of the society's social and cultural context. However, it might be argued also, that a researcher as an outsider to one society in the comparative work would be more able to see things from a neutral perspective. Theoretically speaking, this could be true, however, from a practical point of view, a researcher ought to acknowledge the fact that each society has its own cultural background for its social structure and behaviour (May 1997). From another point of view, it seems illogic to attempt to impose research findings from what performs successfully in one culture onto another society. In contrast to Burke's (1998) thoughts on imitation, it is completely misleading to assume that what is appropriate for one society can function well in another society (May 1997). There must be a balance between research objectives and actual economic, social, and cultural characteristics of a society learning from another society via an application of comparative research methodology. This leads us to the conclusion that research based on comparative methodology should not only reach the dichotomies: extolling/criticising that lead into the decision of imitating/rejecting principles, techniques, and/or conceptions. Rather, it is wise to acknowledge the possibility of enhancing and/or developing local initiatives that might lead into similar results achieved in the other society.

9.6.2. Locations of the Comparative Study.

In this research, Medina in Saudi Arabia and Tucson in Arizona are the two locations for the comparative study. The most interesting justification for these two choices is the fact that these two societies have shown different attitudes toward the native desert landscape at different times in history. In the past, people of Medina were very attached to their indigenous landscape and showed a high degree of fit with its natural processes and material whilst Anglo-American settlers were initially very uncomfortable with their desert environments. In the present times, Saudis are unable to establish points of contact between their native landscape and urban areas, whereas Americans, on the hand, nowadays recognise what was once perceived as 'sickening' and 'monotonous' landscape, as 'land of Enchantment' (Tuan 1990).

The crucial consideration that contributed to the selection of Medina and Tucson, is that both cities are ecologically, historically, and culturally interesting. Both are located within

biologically significant desert landscape. Although Medina's valuable ecological areas have been devastated by the pressure of urbanisation and difficult to control environmental degradation, the city still encompass a number of rich biological sites within the city limits which are protected by local municipalities. Areas like al-Baida, aba-al-Doud, Wadi al-Aqiq, Wadi al-Aaqoul, Jabal Auhud, al-Shaibiah, Hamra al-Asad, wadi Bat-han, Erwah are some of these sensitive ecological zones. In Tucson, the Upper San Pedro river, Tanque Verde creek, and the Rillito river enrich the city with exquisite riparian landscape, however, they are also prone to the threat of urban encroachment (Zube 1998).

Local differences in natural and cultural characteristics among Saudi cities were a major factor in the decision not to include the whole Hidjaz² in the study and limit the scope to Medina only. Kaplan and Herbert's (1987) upheld that sub-cultural variation has striking impact on landscape preferences and they are often as significant as cross-cultural differences. Medina, for example, is like Mecca in being a destination for thousands of pilgrims who arrive annually from the furthest points on Earth to perform Hadj. On the other hand, Mecca unlike Medina has never been an agricultural city. These differences and Medina's distinct affinity to gardens set Medina apart from other Hidjazi cities. An example of how culture differ between cities of Hidjaz despite a great deal of similarities might be noticed in a Hidjazi official who boasted: 'we do not need any agriculture, God has given us the pilgrims as our annual crop' (Cited in Shah 1957).

The following considerations underlie the selection of Tucson rather than any other cities in the state of Arizona, i.e. Phoenix, in the comparative study with Medina:

- i) Tucson is a small city and covers a similar area and has a similar population to Medina. In comparison with Phoenix, life seems slow in pace, quiet, scenic, and casual. This contrast among the two cities is almost like the comparison of Medina and Jeddah in Saudi Arabia.
- ii) The city is unique in its character. Although there are few historic monuments in the city, one can feel the history in its galleries and there are more in its natural environment. On the other hand and despite the fact that Medina has a richer history than Tucson, the recent redevelopment of historic sites of old Medina makes the feeling of history in the city to a great extent similar to the one of Tucson. Similarity

² Hidjaz is the western province of Saudi Arabia. It is a name locally given for the area stretches from Medina in the north to Taif in the south and includes the cities of Medina, Yanbu, Jeddah, Mecca, and Taif. Although villages lie between to these cities are part of Hidjaz as far as geography is concerned, they are not culturally considered as part of Hidjaz. This might owe to the fact that these villages had not shared these cities their cultural and architectural heritage.

in this sense does not mean similarity in history, rather, similarity in the way that one does not see the history, but rather feels it only by the provoking of memories.

- iii) The natural terrain of the two cities is almost identical. The two cities possess the same number of seasonal rivers and also similar numbers and types of mountains.
- iv) The aim of this phase of the study is to compare a city developed in desert environment, but that has gained green-exotic urban landscape.

Despite similarities in many facets between the two cities Medina and Tucson, differences in many fields are rather prominent. The first obvious difference between the two cities is the culture and the social life style. Despite the pressure of newcomers, tourists and the obvious Hispanic presence in the city, Tucson possesses a strongly western, American atmosphere. Medina, although it has, as with all Saudi cities, adopted American construction standards in almost all urban infrastructure, the city life style is very much affected by the presence of the Prophet mosque, which exemplifies an urban core around which all city activities are oriented. The density of vegetation in 'natural' areas is rather greater in Tucson than it is in Medina. This is primarily due to Tucson receiving more annual rainfall rate (300mm/year) than Medina (21mm/year). Another difference between Medina and Tucson is that Tucson has never been an agricultural city like Medina. Local residents and new comers were involved directly and indirectly in other businesses that included mining, government, military activities, transportation (Saarinen 1988), and education.

As has previously been discussed, Medina had a very rich architectural heritage. The existing architecture is a blend of western concrete enclaves housing with modern Saudi social patterns of interior spaces that are thought by the designers to suit the local social and cultural life style. Tucson seems to have reconsidered the Spanish-Indian traditional styles and fashioned them in new suburbs. Despite the indigenous and splendid adaptation of the historic adobe house to some Tucsonan modern architecture, with the exception of art galleries, which are numerous in the city and some other institutional and commercial buildings, the inner city lacks this image. The most dominant architecture style is a mix of modern western architecture with a high proportion of territorial Mexican style homes. It seems then that both cities have been adapting a variety of architectural styles that can not be considered unique to the cities. This has served the fourth part of the assessment where images are predominantly associated with urban areas, i.e. Tucsonans are familiar with different architectural styles and these are unlikely to bias their perception of landscapes presented in this section.

In this part of the study a brief comparison of Medina and Tucson's urban image and culture is undertaken to produce an image on how the two cities relate to their desert landscape. In arial view of the area of the two cities reveals the fact that both are in a similar desert-dry environment (figure 9-1), however each city has responded to the same environment in two contrasting ways. As previously mentioned, planting materials in the urban, suburban, rural, and wild landscape in Tucson are relatively consistent. From beyond the city limits in the heart of the wild desert to private gardens inside the city, desert landscape is the dominant image (figure 9-2). In Medina as in many other Saudi cities, planting materials in the urban, suburban, rural areas are similar, but, drastically different from those found in the wild desert (figure 9-3). On the other hand residential subdivisions, building materials, streetscape, design patterns and components of public and private gardens are similar from inside the city through the suburbs, to rural areas (figure 9-4). It was also found that Tucsonan children are inspired by the surrounding desert landscape in their drawings of nature, whereas Saudi children's drawings showed the stereotyped idea of nature which is inspired mainly by European utopian-landscape (figure 6-10 & 11).

A brief glance at advertisements of architectural projects in Saudi Arabia and Arizona, provides an indication of the attitude of each market. In Saudi Arabia, the common orientation is still directed toward the western architectural style, with the exception of institutional projects. The advertisement of 'Beverly Hills-Jeddah' by the Saud al-'Aqiel Company, for example, give a general sense of the market's trend (figure 9-5). A prominent statement in the advertisement reads 'call us . . . and realise your dreams.' Interpretation of this statement suggests the architectural profession and real estate agents believe that the society feels that 'living in an American architectural style is a common dream.' The rest of the advertisement is based on the fantasy of living in the style of 'Bevely Hills.' In Tucson, an advertisement was demonstrated within a public exhibition for Eglin/Cohen & Dennehy Architects is shown in Figure 9-6. This practice, in its advertisement was keen to depict through image and writing the general approach they embrace as a professional design firm. One of the obvious conclusion one might reach is the degree of attention they committed toward the natural desert environment. In another location, another advertisement of Eglin / Cohen and Dennehy Architects present a group of three-dimensional drawings of some of their works. One of these drawings was for a suburban residential house in which the surrounding desert landscape dominated the scene while the architectural part of the project was deliberately low key. It is probably mainly the middle-income-class that support this trend, but most influentially the wealthy individuals.

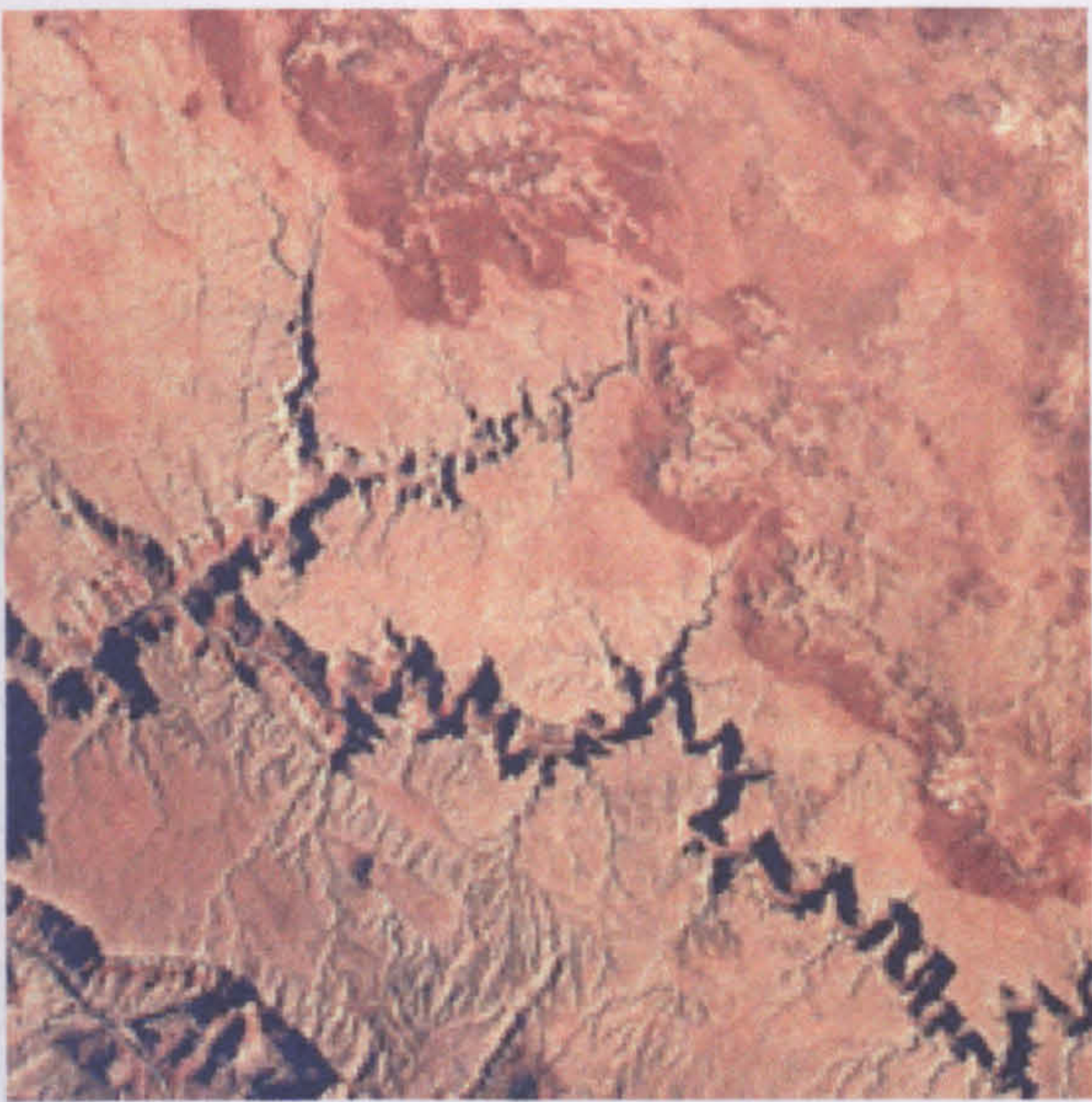


Figure: 9-1, Aerial views for the southern part of Arizona on the left and western area of Saudi Arabia on the right (Medina area) shows that the two cities lies in desert landscape.



1



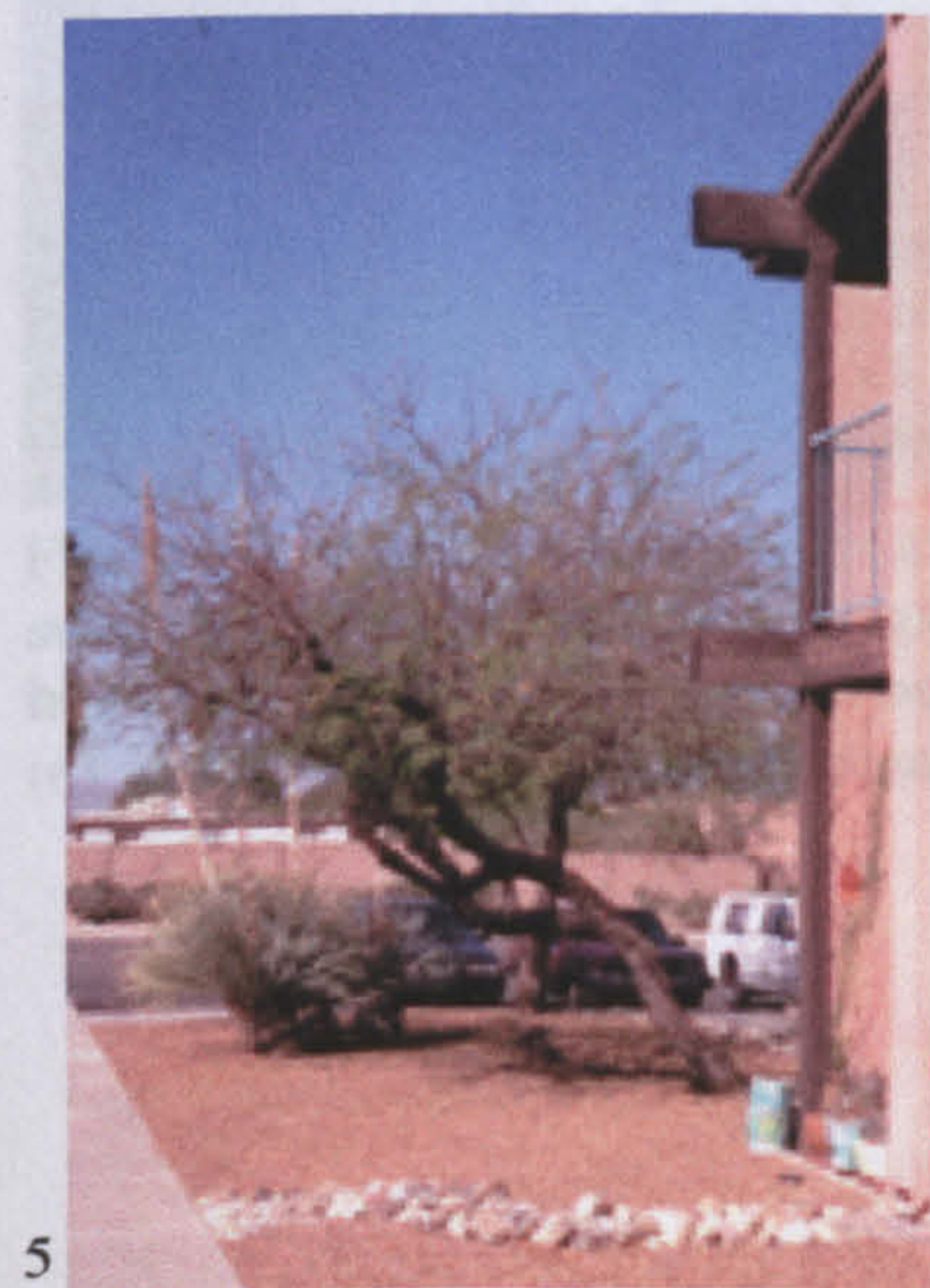
2



3



4



5

Figure: 9-2, Tucson urban landscape make a good use of desert native plants (6), such as in private gardens in urban areas (1), parks (2), in private gardens in the suburb(3), a long streets and major roads (4), in down town residential complexes (5).



6



1



2



3



4



5



6



7



8

Figure 9-3, in Medina exotic green irrigated plant materials is universally used in all different urban and suburban, public and private open spaces: along major roads (1), local roads (2), in private gardens of high income residential areas (3), and middle income (4), on slopes of mountains (5), around mosques (6), in open spaces around institutional buildings (7), in public parks and gardens (8).



Figure: 8-4, design scheme of open spaces, soft and hard landscape materials, and design programs are uniform regardless of geographical location, i.e. city inner landscape in Medina, on the left, is almost the same of villages such as Badr (150km to the south of Medina), on the right.

بفرلي هيلز - جدة

- تصميم وتنفيذ منازل أمريكية وأوروبية بجميع الأحجام
- تصميم وتنفيذ أعمال ديكور وتشطيب داخلي متكامل
- تصميم وتنفيذ حدائق ومساحات للعب
- مشروعات أمريكية بالتنسيق بالمشرفين



تخيل أن يظنك مشرفك في المملكة على قرار الحصول
بفرلي هيلز، أو الجسوت على شواطئ لونغ بيتش
أو قلل بالبحر سيريفر أو حتى على طراز بيوت الراج في تكساس،
في الحقيقة أي كان حلمك، بإمكاننا تحقيقه على نفس مستوى الجودة.

اتصل بنا الآن... وحقق أحلامك



مؤسسة سعود عقيل

جدة - الرياض - القصيم - الأحساء - الدمام - الخبر - القطيف - المنورة - تبوك - حائل - بريدة - المجمعة - مكة المكرمة - جدة

Translation for the advertisement.

Beverly Hills – Jeddah

Design and Construction of American and European House styles.

Imagine that your house is located in the Kingdom on the style of Beverly Hills or villas of Palm Springs, or even Texas farm houses, if this was your dream, then we can bring to life.

Source: (Alsharq Alawsat, 1999).

Figure 9-5, Aqiel firm advertise for Beverly Hills houses in Jeddah.



Figure 9-6, Eglin/Cohen & Dennehy Architects advertise for its design approach by giving an example of a real design project.

The Academy Village in Tucson, is one of the recent examples through which the designers prioritised the depiction of the surrounding landscape over giving too much detail for the architectural details. The public as clients has expressed this awareness and attitude in the details they provide to designers about their needs and requirements. As an example, a private house project was presented as follows:

‘this 6,500 s.f. residence adjoins the Coronado National Forest in the Southern Arizona. The owners are a young couple, new to the area who wanted a generous, contemporary home open to mountain and city views, and suitable for large scale entertaining. They requested that the site be minimally impacted and that the project be as maintenance free as possible. The four acre site is bisected by a wash developed into livestock pools by WPA stone dams. The location of the wash did not permit the programmed spaces to be planned on only one side. The decision was made to bridge the wash and to plan the general massing to permit maximum cones of vision to the city on the south, while spreading out the building components to permit views to the north (the mountain). . . . The project was designed to minimise rock cutting and to utilise the natural outcroppings, WPA dams, and the existing desert plant material. . . .’ (figure 9-6).

9.6.3. The Objectives of the Comparative Study.

This part of the study aimed to investigate cultural variation in landscape preference and perception of desert environments in two cities, Medina-Saudi Arabia and Tucson-Arizona. The major objectives of this part of the research is:

1. To examine Madanies versus Tucsonans preference and perception of native and exotic landscapes in garden and urban context.
2. To examine the possible existence of cultural universals among societies toward the natural desert environment, or what Simmons (1993) called ‘regularities in societal behaviour.’
3. To examine the effect of the role of education (formal and public), familiarity, knowledge (formal and common), in shaping people’s perception and preference for the dichotomies: native-exotic and formal and naturalistic urban desert landscapes.

More detailed objectives of this study are:

1. To examine empirically the public’s knowledge of native desert landscape
2. To examine empirically the public’s perception of various aesthetic dimensions of desert landscapes.
3. To examine empirically the public’s landscape preference of native desert in comparison to exotic green landscapes.

4. To lessen subjectivity involved in qualitative judgements of aesthetic determinations of desert landscape.
5. To identify aesthetic qualities of desert landscape based on public perception and landscape preference.
6. To identify the social and cultural variables that correlate positively with landscape preference of desert environments.

9.6.4. The Hypotheses.

The hypotheses underlying this comparative study falls into two major categories. The first category is as follows:

1. Consistency in desert-urban-image and in culture lead into a universal agreement in people's landscape preference and perception.
2. People of different cultures with different urban landscape experiences show a general variance to their landscape preferences and perceptions.
3. Public education has a significant role in creating a general societal orientation to their landscape preference and perception of desert landscape.

The second category is more specifically concerned with correlating individuals' backgrounds and their landscape preference and perception to include the following hypotheses:

1. People of different socio-economic status show different landscape preferences and perceptions.
2. People with art and design related educational background would tend to prefer desert native landscape to exotic landscape and perceive desert landscape positively.
3. People of different ages have different attitudes toward native desert and exotic green landscapes.
4. Diverse degrees of familiarity at different ages with different landscapes lead to variance in landscape preferences and perceptions. Familiarity is addressed here by several determinates, which include:
 - i) Familiarity gained by individuals spending part of their childhood, adolescence, and/or adulthood in desert landscape.
 - ii) Familiarity gained by residing in areas close to desert landscape.
 - iii) Familiarity gained by creating desert private garden.

5. People with different degrees of interest in desert landscape show different landscape preferences, i.e. people with more interest in desert related recreational and cultural activities would prefer desert native landscape more than exotic landscape.
6. People with different degrees of common knowledge of desert landscape would show different landscape preferences, i.e. the more knowledgeable people would rate desert landscape more positively, i.e. it is proposed that individuals who are able to differentiate between native and exotic plants are knowledgeable of plants and are predicted to rank in favour to native plants.
7. People with different levels of awareness of practicality, environmental and cultural value of xeriscaping would show different preferences and perceptions toward desert landscape, i.e. people with more awareness would rate desert native landscape positively.

9.6.5. Constituents of the Comparison Study.

i) Participants

Green (1954 cited in Walter and Savasdisara, 1986) stated 25 people as a minimum number of participants in landscape-preference studies according to the law of Comparative judgement scaling procedures. The common limitation of most researches on landscape visual assessment is that students form the majority of participants, e.g. Purcell and Lamb (1998); Jackovics and Saarinen (1978). The problem, as Newell (1997) highlighted, is that the results yielded in such studies are difficult to assess, 'because they are neither fully lay nor fully trained.' To avoid this situation, one of the objectives of this part of the study was to have participants from all walks of life, from all socio-economic classes, from diverse places of residence and educational background as well as from several age groups. Gender on the other hand was not one of the criteria in choosing participants, neither has been hypothesised in this study. This is due to the participation of females in Medina being impossible. Although the number of participants in Medina and Tucson were aimed to be as large as possible, participation in the study was to be strictly voluntary.

In Tucson, the sampling procedure was to choose participants randomly from three locations in the city, which are as follows:

1. Students from the University of Arizona encountered in the University Boulevard³ and they were asked individually if they would like to participate in the study. The total number of participating students was 41. It is worth mentioning here that students were more reluctant to participate than other groups met in the other locations in the city. Students were enrolled in a diverse range of departments in the university.]
2. People in a public green-park, (Reid Park), frequented by middle class families not necessarily specially interested in desert looking landscape. (The total number of participants in this location is 30 people.
3. People in a desert-parks, (Sabino Canyon⁴ and Saguaro National Park⁵) involving a mix of socio-economic classes who were anticipated to have a reasonable degree of interest in desert landscapes. The total number of participants in these locations was 80 people.

Participants interviewed in the three parks, Reid, Sabino Canyon, and Saugaro National park, were a mix of males and females, of different age groups, and with different backgrounds. Although people in design related professions (Walter 1986), had been one of the targeted social groups in Tucson, difficulties encountered in arranging for the Tucson's part of the experiment made this objective unrealisable⁶.

In Medina, a total of 216 people were recruited from governmental agencies and the School of Pedagogy in Medina (a branch from King AbdulAziz University in Jeddah). The sample groups were categorised as follows:

³ vast lawn area in a large central median on the 'no traffic' part of the University Blvd. in the heart of the University of Arizona campus in which students usually sit and chat, relax, throw Frisbee, and do such casual outdoor activities.

⁴ Sabino Canyon is a desert superb lush desert landscape located in the foothills of the Santa Catalina Mountains in the Northeast corner of Tucson. The park is open to pedestrians only and has several rest areas where joggers and strollers sit for a break or wait for the open-air shuttles that depart regularly to and from the visitor centre.

⁵ Saguaro National Park is located on the Eastern side of Tucson and on the edge of the Sonora desert. The area is a house of Tucson major attractions of which Sonora Desert Museum and International Wildlife Museum are large cultural and recreational destination. The area was originally a major site for camping, but now it is more used as picnic area. The area has several scenic vistas and is considered the most beautiful wild desert landscape adjacent to the city.

⁶ The part of the experiment in Tucson was planned on the basis of receiving assistance from Dr. Ervin H. Zube, Ph. D. Professor Emeritus, School of Renewable Natural Resources, University of Arizona, Tucson, Arizona, however on arrival, Professor Zube, withdrew and was unable to assist with access to lists of landscape professionals, etc., within Tucson that may be interested in being enrolled in the study, and also obtain the use of a room to undertake the assessments sessions (see appendix II).

Agents from governmental and private sectors totalled 155 participants. Invitation posters (Purcell and Lamb 1998), were placed in bulletin boards of governmental agencies which included:

- i. Six municipalities in Medina in addition to the head municipality.
- ii. Department of Education.
- iii. Department of Water and Sewage.
- iv. Department of Endowments and Religious Affairs.
- v. Landscape architects, architects, and planners from private planning and design firms.

Students from design related schools totalling 23 students. This participants group was eliminated from the study due to the difficulties discussed earlier (see footnote 6), in finding a similar group in Tucson.

Students from the School of Pedagogy totalled 23 students.

Elderly people visited at home (15 people).

Thus the total number of participants in Medina was 193 people, and the total number of Tucsonan participants was 151 people, making a total of 244 participants in the study.

ii) The Stimuli.

It was decided that one desert environment only i.e. Medina, would be represented in images used in the landscape visual assessment to reduce the bias of sub-cultural variations among regions in Saudi Arabia. Saudi Arabia has a diverse landscape and the combination of landscapes from other regions would influence the landscape preference matrices. The only exception to this rule of Medina images only were images no. 2.10, 3. 3. L, 3. 6. R, 3. 9. L and R taken from Arizona. The principal aim was to maintain consistency in the overall atmosphere of the images. Slides of native vegetation excluded herbaceous plants and rare plant species that were unlikely to be known to Saudi participants. In most slides, close up views were used to enhance natural gradation of colours and to overcome the problem of greyish yellow caused by desert bright light which is common in distance panoramic shots. This technical problem was thought of as a factor that might influence participants' perception and ability to distinguish between features in images. In addition, photographing times were restricted to early morning and late afternoon to avoid daytime solar glare, mirage effect, and reflections. Medina's various urban settings did not support sufficient desert-like landscapes to meet all the purposes of this study. Where necessary, computer edited images were used to create images of desert-like urban landscapes to compare with lush, green looking urban landscape. Computer created photomontages were developed using local images of sites in Medina and 'Adobe Photoshop 4'

to generate images that represented particular landscape compositions of urban desert landscapes.

In Medina, the photographic presentation of this landscape perception comparison study took the form of a 'colour slide presentation.' These images were taken by the author, with the exception of (images no. 2.2, 2.4, 3.2.L) borrowed from the Municipality of Medina collection, and (images no. 2.10, 3.3.L, 3.6.R, 3.9.L and R) photographed from (Perry 1992). In Tucson, the same images were transformed into photographic prints (4x6 inches), mounted on (8.5x11 inches) card-boards, and presented in a portfolio following the same order used in the slide presentation used in Medina. In both cases no clues, neither description of images was given to participants to avoid bias generated by such information (May 1997; Walter and Savasdisara 1986). They have been advised not to respond to the order of images (for they were randomly arrayed), the photographic quality of slides (Walter and Savasdisara, 1986) or the presentation mode in their assessment (Hull and Stewart 1992). The participants were asked to rank the scenes according to the instructions given in each section of the questionnaire. Respondents were asked to undertake three tasks:

- i. **A brief assessment of participants' knowledge of desert landscape.** The objective was to assess participants' ability to differentiate between native and exotic plants in the Saudi landscape. Ten images of native desert and green exotic plants were divided into two sets of five images with no particular order, i.e. each set does not necessarily represent all native or exotic plants, rather images were intentionally placed in a way that does not give a clear sense of order. The intention of this test was on one hand, to examine variance in knowledge of desert plants between the two societies. The images are shown in Figure 9-7.
- ii. **Semantic perceptual assessment of desert landscape.** This assessment question the way people perceive desert landscape positively and negatively. To do this, scenic landscape is semantically assessed using ten semantic differentials derived from previous interviews with elderly people in Medina and amended in response to other similar statements used in studies reported in the literature. They were designed to be simple, familiar to the public, and culturally rather than literally meaningful to both Arabic and English speaking respondents. The images are shown in Figure 9-8. Two sets of images were used. The images selected for each attribute in this part of the questionnaire was carefully chosen to represent as much as possible the perceptual assessment. The first set (five images) was described by culturally positive interpretative statements, whereas the second set (four images) was described by culturally negative stereotyped statements. The aim of assessing participants' reactions toward both positive and negative descriptive statements is to fit the two possible perceptual

modes, which were anticipated to differ among people. The last image in this set was intentionally selected to depict exotic green landscape. The objective of this image was to examine the reaction to this sudden change in the landscape after the perceptual experience of desert landscapes.

iii. Perceptual comparison of native and exotic landscape design approaches in urban desert cities. This assessment is meant to examine participants' landscape preference between two sets of landscapes, native desert on the left column and exotic green on the right column. The first ten pair images are of garden looking landscape, e.g. private gardens, public parks, water features, etc., (the images are shown in Figure 9-9). The second ten pair images are of designed-urban landscape, within different compositions, e.g. central medians, residential open spaces, roundabout. etc., (the images are shown in Figure 9-10).

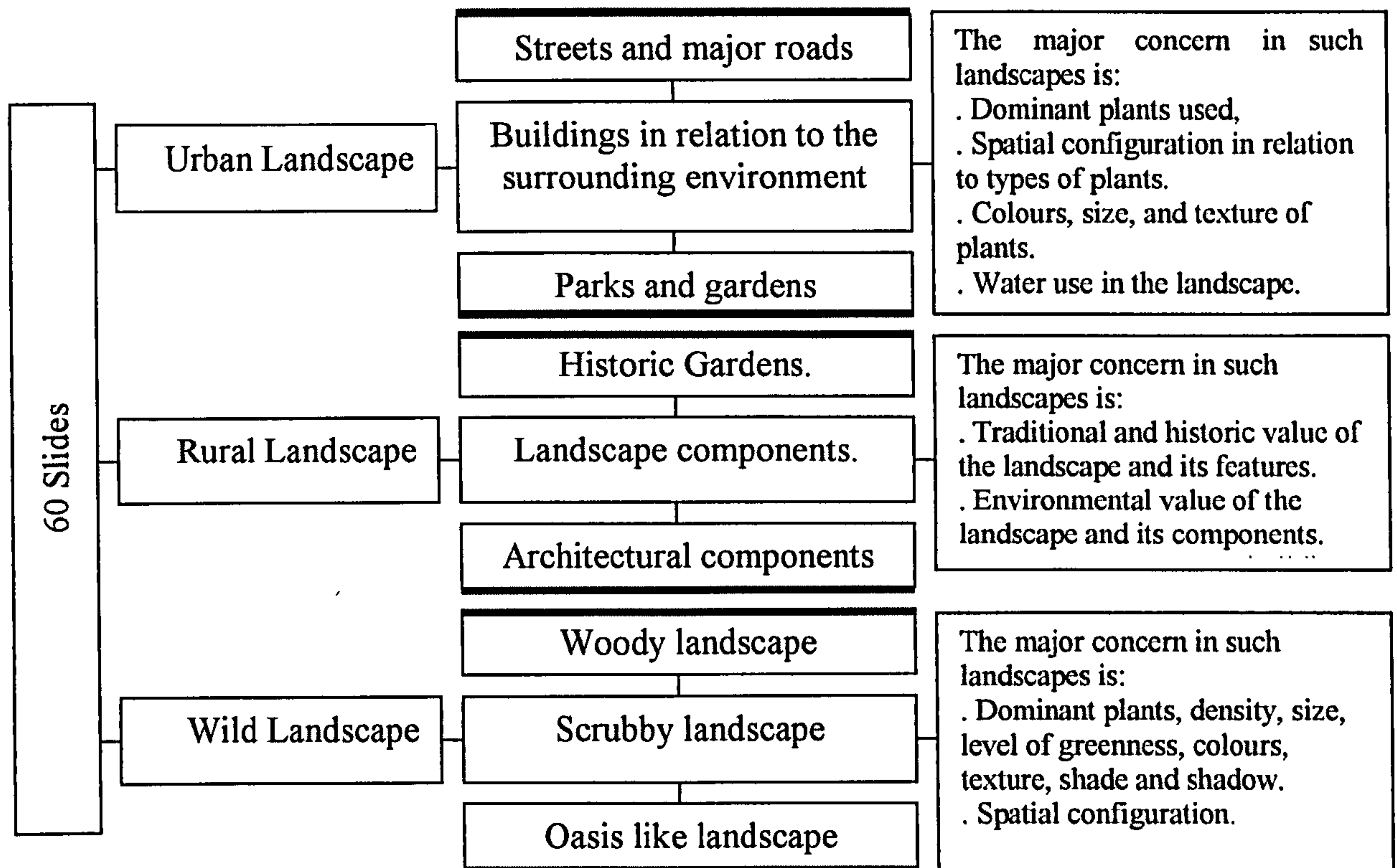
The total number of images used in this study was 60 (figure 9-7, at the end of this chapter). These images were selected from a collection of 260 images that represent diverse categories of Saudi and Arizonian, urban, suburban, rural, and 'natural' landscapes. To reduce this number to a more manageable size, a large number of images were rejected because of obvious similarities, excessive presence of man-made destruction, weak representativity, and photographic imperfections. The selection of the images was reviewed in two sessions presented to graduate students in the University of Sheffield. The author's supervisor had the final word on the selection of the images after some adjustments had been made. The purpose of this process was to confirm that each image adequately represented the setting intended for the study, i.e. urban street, water feature, etc. Although in the Medina part of the assessment most of the participants were expected to be from Medina, locations of the images were not revealed to avoid possible bias (Anderson 1981; Hodgson and Thayer 1980).

To cover the whole spectrum of the Medina landscape, the decision was made to include the three typical divisions of the cities' landscapes: urban, rural and wild landscapes (Rabinaowitz and Coughlin 1970). Urban landscapes were meant to cover both traditional and modern manipulation of landscape elements in streets, urban open spaces around residential and institutional buildings and designed parks and gardens. In rural landscape, a major consideration was given to features that still hold certain historical, cultural values and a level familiarity for the society. These features included both landscape, e.g. plants, water, etc., as well as architectural components like walls, walkways and buildings e.g. *diwan*⁷, and water features e.g.

⁷ *Diwan*: is a large room opens toward north overlooking *Birkah* (water pond).

*birkah*⁸. In the wild landscape the emphasis was primarily accorded to the three major types of desert landscapes, which are woody, scrubby, and oasis like landscapes (figure 9-11).

Figure: (9-11) Categories Of Images-Slides Taken to Represent Medina



The two slide projectors used in presentations in Medina were placed in every session in the same distance from the screen to have constant images' sizes in all the sessions. Sessions were arranged to be held in formal presentation rooms within appropriate control of lighting, etc., to allow participants to see the questionnaire without impairing the image quality.

⁸ *Birkah*: is a water pool used as an ornamental element, swimming pool, part of a passive cooling system and a cistern of irrigation water.

iii) The Questionnaire.

a. Design of the Questionnaire

The most important aim was to design a questionnaire that did not contribute to a reluctance of participation. The questionnaire was designed to be compact, foldable, simple, straightforward, one page long, and attractive, to gain constructive involvement of participants. The selection of these criteria was due to the fact that people in Saudi Arabia are typically reluctant to be involved in responding to questionnaires. From the author's experience in two prior projects in the Municipality of Medina, he came to the conclusion that the longer the questionnaire was, the less attention and time people would give in their responses. It was obvious in both cases that the public don't like to encounter questions or ideas they have never thought of. Reluctance to participate was usually expressed almost immediately, They, in most cases, did not fill in the questionnaire and apologised for disappearing. Out of 250 questionnaires dispersed by Dar Alhandasa Consultant office in association with the Municipality of Medina during a previous study titled "The central Park of Medina" in the city of Medina, the team members included Dr. Mahir Stino, Dr. Mohammed Salamah, and the author, the team was able to collect only 64 questionnaires only. Seventeen of these were returned blank making a total of 47, or 18.8%, which is far lower than the average rate of response in similar studies, e.g. 38%. in Cary and Williams (1998).

For this reason and for the sake of obtaining accurate responses as possible, the idea was to create an event that would bring the survey sample group together in more enjoyable, less stressful and professionally controllable assessment sessions. The questionnaire itself was designed to be very friendly, artistic and interesting for the purpose of eliminating the negative attitudes that are attached to questionnaires. During these assessment sessions, the surveyed sample groups were able to ask questions regarding the questionnaire and seek clarification as required. The intention was to involve the sample group in the work, to make it as an activity rather than being a task to be done, as a way to insure their thoughtful participation. Face to face working has the capacity of gaining the trust and a feeling of responsibility in the other party. The presence of both of the researcher and the participants in an openly conversational medium builds useful relationship that enhance the survey group's state as an important asset to the research rather than means of finding data.

The questionnaire was written in both, English and Arabic. The Arabic translation of the questionnaire was reviewed by two language specialists to ensure that both, Arabic and English versions give the same meaning as accurate as possible. Dead-end question format is used in

most inquires on respondents' personal information to reduce the spectrum of responses, e.g. section 9 in the questionnaire. The questionnaire was folded into six facets consisting of nine sections. Each section was tabulated in the way that would assist analysis of the results. It included the following components:

The cover page which contained the title of the study and a logo selected for the study, which was used in all correspondences and works presented in this study, e.g. posters, letters, etc.

1. **Educational background and level of education.** Kaplan and Herbert, (1987) attributed variances in landscape preference in a cross-cultural study to educational background, vocational interests related to the environment. In most studies on landscape preference and perception, on the other hand, education and vocation have been hypothesised, for most landscape preference studies involve students-participants (Newell 1997). In this study, educational background and vocations of participants was generally diverse, for the experiment was done in a range of places in addition to universities. Participants' fields of studies were broadly categorised with the exception of design related professions. Level of education was also questioned and ranged between 'no degree' and 'Ph.D.'
2. **Age and landscape types in which respondents spent their lives in and for how long.** In Medina as well as in Tucson, the landscape was categorised according to the four major landscape zones of each country. In the Medina questionnaire, the landscape is distinguished as follows:
 - i. Arid landscape, e.g. Riyadh, Haiel, etc.
 - ii. Humid coastal, e.g. Yanbu, Jeddah, etc.
 - iii. Semi-arid woodland landscape, e.g. Abha, al-Baha, etc.
 - iv. Arid agricultural, e.g. Medina, al-Ahsa, Qasiem, etc.

In the Tucson questionnaire, the landscape is categorised in the following major landscape zones:

- i. Semi-arid landscape.
- ii. Temperate woodland landscape.
- iii. Temperate agricultural/grassland/rangeland.
- iv. Humid sub-tropical woodland/agricultural.

The landscape in both cities was also distinguished in terms of degree of urbanisation, which included the following:

- i. Rural landscape.
- ii. Agricultural landscape.

- iii. Suburban landscape.
- iv. Urban landscape.

Respondents were asked to indicate where they have spent their lives by marking the appropriate boxes with a number representing the landscape types of these places. This model examines present as well as past influences of landscapes on participants at different stages of their lives. This question is based on what Kals, Schumacher, and Montada (1999) conclude that past experiences with nature have powerful impact on emotional affinity toward nature.

3. Preferred landscape setting for major recreational activities. Major parks related recreational activities were categorised under the following categories:

- i. Theme parks.
- ii. Urban parks.
- iii. National parks.
- iv. Nature reserves.
- v. Wilderness.

Respondents were asked to rank their preference for environmental locations which included:

- i. Semi-arid area.
- ii. Temperate area.
- iii. Subtropical.

The purpose of this inquiry was to examine societal as well as different social groups, within each society, preference of different environmental settings of major parks and related recreational activities.

4. Assessment of knowledge gained through diverse cultural, and informal educational mediums.

This part of the questionnaire assess participants' level of knowledge gained by informal education such as information learned from reading, watching television programs, attending museums, etc. The intention was to examine the influence of informal education, i.e. interest in pastimes related to desert landscape, on participants' knowledge of desert environment, perception of nature, and landscape preference. Participants were asked to rank their interest in pastimes related to desert landscapes in the scale of five:

- i. 2 = Highly interested.
- ii. 1 = Interested
- iii. 0 = Do not know
- iv. -1 = Not interested
- v. -2 = Definitely not interested.

5. **Participants knowledge of desert environments.** The first part of the visual assessment, involved assessment of participants' recognition of differences between native and exotic plants, (5 pairs of paired images, totalled 10 images). Participants were asked to identify plants as native desert or exotic greenery by ticking in boxes as appropriate (see figure 9-7) The order of images and ideas behind the selection of each image is listed in the following table:

Slides presented on the left screen.		Slides presented on the right screen.
1. 1. L. Exotic: <i>Washingtonia filifera</i> . A well established and ornamental palm tree not only in Medina, but in the whole kingdom. Although it is tolerate to hot areas, it is not native to Medina.	First presentation Palm trees	1. 1.R. Native: <i>Phoenix dactilifera</i> A very popular palm tree that possess cultural, religious and historic value.
1. 2. L Native: <i>Ziziphus spina-christi</i> A very popular tree traditionally planted in urban areas especially in <i>houshs</i> (courtyards) of old Medina.	Second presentation Trees	1. 2. R Exotic: <i>zroubia</i> An over-planted tree, recently appropriated to Medina, it has been valued for its deep green colour and for being highly tolerant to hot areas.
1. 3. L Exotic: <i>Ficus altissima</i> . A typical walkway in designed parks.	Third presentation represents use of trees in designed landscape	1. 3. R Native: <i>Tamarix.aphila</i> A traditional drive way in the suburb of Medina.
1. 4. L Native: <i>Abutilon Pannosum</i> Very ubiquitous small shrub, grow around palm orchards wildly and marches. Because of its showy flower, the public rarely consider it as native.	Fourth presentation represents desert flowers	1. 4. R Native: <i>Capparis decidua</i> Very ubiquitous flower in wadies and a long drainage lines around Medina historic gardens, it grows in masses in rocky as well as alluvial soils on wadie's banks.
1. 5. L Native: <i>Cyperus conglomeratus</i> A native grass, smell nice and used as medicine for certain abdominal diseases, grow around marshes and stay long after dry.	Fifth presentation represents greenness of desert plants	1. 5. R Native: <i>Leptaderia pyrotechnica</i> a native large bush, rarely found in urban spaces, however, usually found around palm orchards and in wild landscapes.

6. **Perception of landscapes.** Part two of the visual assessment involving semantic assessment of aesthetic values in desert landscape, for a total number of 10 images (9 native desert landscapes and one exotic landscape, see figure 9.8). The first five images were associated with positive statements. The second four images were associated with negative statements. The last image (no. 10) was associated with a response (alien). Participants were asked to rank the listed statements against each image in a scale from (-2 to 2), where -2 means strongly disagree and 2 means strongly agree.

The images covered the following landscape compositions:

No.	Semantic representation	Landscape types.
1	A natural scenic landscape	2.1 Desert scenic landscape.
2	A traditional landscape	2.2 Desert scenic landscape with mountains in the background.
3	A bio-diverse landscape	2.3 Desert biodiverse landscape.
4	A familiar landscape	2.4 Close up to desert landscape material.
5	A worth visiting landscape	2.5 Desert water body.
6	A harsh landscape	2.6 Density and structure of desert plants.
7	Wild to be adapted for people	2.7 Desert wild landscape structure.
8	A sterile landscape	2.8 Desert bushes on sand dunes.
9	A hostile landscape	2.9 Scrubby landscape.
10	An alien landscape.	2.10 Green exotic landscape.

7. Landscape preference. Part three in the visual assessment involving landscape preference toward traditional-native (presented on the left hand side) and modern-exotic landscapes (presented on the right hand side) which were in two groups:

- i. Recreational places like gardens and parks (first 10 pairs of native and exotic landscape images, totalled 20 images), see figure 9-9.
- ii. Urban open spaces like streets and residential areas (last 10 pairs of native and exotic landscape images, totalled 20 images), see figure 9-10.

Participants were asked to rank both sets of landscapes according to their perceptual preference in a scale ranged from (-2) to (2), where -2 = strongly like, 1 = like, 0 = neither like nor dislike, -1 = dislike, -2 = strongly dislike.

The images covered the following landscape compositions:

Recreational kind of landscapes such as gardens and parks.		
Native, wild and traditional landscape		Exotic, designed and modern landscape
3.1.L. A traditional wall with a traditional planting	1 st presentation	3.1.R. A traditional wall with exotic planting
3.2.L. A traditional water use in a traditional garden	2 nd presentation	3.2.R. A modern water use in a modern garden
3.3.L. Native plants on bare land	3 rd presentation	3.3.R. Exotic plants on green lawn
3.4.L. Traditional walkway in a traditional garden	4 th presentation	3.4.R. A modern walking path in a modern garden
3.5.L. Wild growing native plants	5 th presentation	3.5.R. Pruned exotic plants
3.6.L. Wild structure of native plants	6 th presentation	3.6.R. Designed structure of exotic plants
3.7.L. Coloured foliage of native plants	7 th presentation	3.7.R. Coloured foliage of exotic plants
3.8.L. Water form in the wilderness	8 th presentation	3.8.R. Water form in the designed landscape
3.9.L. Designed arid landscape	9 th presentation	3.9.R. Designed green temperate landscape
3.10.L. Open, native, and scrubby landscape. trees on groundcover.	10 th presentation	3.10.R. Enclosed, exotic, and dense landscape. trees on groundcover

Urban landscape such as streets and open spaces in residential areas.

Native and traditional landscape		Exotic and modern landscape
4.1.L. A major road through wild landscape	1 st presentation	4.1.R. A major road designed with exotic plants
4.2.L. A road through traditionally designed native landscape	2 nd presentation	4.2.R. A road through a modern designed exotic landscape
4.3.L. Native trees in major urban street	3 rd presentation	4.3.R. Exotic trees along urban street
4.4.L. Residential area looking over traditional garden	4 th presentation	4.4.R. Residential area over looking a modern exotic garden
4.5.L. An entryway in a villa designed with native plants creating a wild atmosphere	5 th presentation	4.5.R. An entryway in a villa designed with exotic plants creating an exotic atmosphere
4.6.L. An open space in a residential area designed with native plants and desert material	6 th presentation	4.6.R. An open space in a residential area designed with exotic plants and material
4.7.L. A traditional composition of residential unit	7 th presentation	4.7.R. An exotic composition of residential unit
4.8.L. Native planting around a residential unit	8 th presentation	4.8.R. An exotic planting around a residential unit
4.9.L. A residential unit setting in a wild landscape	9 th presentation	4.9.R. A residential unit setting in an exotic landscape
4.10.L. Native plants in a an institutional building	10 th presentation	4.10.R. Exotic plants around an institutional building

8. Place of residence and assessment of private gardens. In this part of the questionnaire, participants were asked to locate their homes in relation to different zones of the city which included:

- i. City centre.
- ii. Urban area.
- iii. Suburban area.
- iv. Rural area.

In addition, participants were asked also to indicate the approximate percentage of vegetation cover they have in their private gardens. This inquiry was categorised under the following proportions:

- i. Fully planted.
- ii. 75% planted.
- iii. 50% planted.
- iv. Paved.

Type of planting is also investigated by asking participants about whether native desert or exotic green was the type of vegetation used in their gardens.

9. Participants' awareness of design values in urban landscapes. In this part of the assessment, participants were asked to rank design values in a scale ranged from (-2) to (2), where 2 = strongly agree, 1 = agree, 0 = neither agree nor disagree, -1 = disagree, -2 =

strongly disagree. The purpose of this part is to measure level of participants' awareness of landscape design values in desert cities.

b. Designed Time For The Visual Assessment Sessions.

In studies where photographs are used, time of presentation is often designed within a limit that allow adequate cognition of a landscape (e.g. Walter and Savasdisara 1986). In this study, time was considered a prime issue in the perceptual assessment to be determined carefully and precisely. Not only the determination of the duration of the session, but a commitment to the designated time in each session was seen as vital. For this reason a literature review was done to extract ranges of viewing durations from similar studies. The time designed for this session was 55 minutes distributed as follows:

Questions (1,2,3,4,5) personal information = 20 minutes.

Questions (6, 7, 8) visual assessment chart = 30 seconds / each slide → (60 slides x 30 seconds) = 30 minutes.

Questions (9, 10) opinion survey = 5 minutes.

Total = 55 minutes

This appropriateness of this time was determined through two pilot sessions conducted at two different times on two groups of Saudi graduate students in Sheffield University. The aim of the sessions was not released to the participants to avoid intentional behaviour in respect to time. They were asked to indicate when they had finished each question. The time of questions (1,2,3,4,5, 9) was recorded in both sessions when the last person in each group had finished each question. The time of questions (6,7,8) of 30 seconds per slide derived from a literature review of similar studies' was tested in both sessions and found to be reasonable. The average time of these two pilot sessions was determined and then announced, in posters and in the introduction to each session, as the required time for the participation in each session. Despite rehearsal sessions and preceding arrangements, the actual visual assessment sessions, ended on average of +20 minutes later than anticipated.

c. Description of instructions for the visual assessment sessions.

The following statement was announced the same to maintain consistency of information released to participants and to keep within time (this statement has been used only in Medina, for difficulties encountered in Tucson restricted the use of the same methodology and participants were met individually).

"I would like to thank all of you for participating in this visual assessment session, and stress that all information will be treated in a strictest confidential manner, and will be used for the purpose of this study only. Names are not important, so do not put your name on questionnaires. The time designed for this session is 55

minutes. I very much appreciate your decision to spend this time here and will do my best to stick to this time. Your help is substantially expected in following the instructions precisely in answering each question where you will notice that the placement of any answer in the wrong box will lead into a misleading result. This questionnaire is designed to be filled out with the help of verbal instructions, so do not move to the next question until I ask you to do so. The reason this question is designed in this manner is to minimise use of paper to the 1/8th. Secondly, accuracy in answering questions especially in the visual assessment part is highly required. When you finish with each question, please put your pen down so I can notice when should I proceed to the next question.

Please open the questionnaire cover now and refer to the left-hand-side column where you will find questions numbered (1 and 2). When you turn this part over in clockwise you will see question number (3 and 4). This first part of the survey is quiet straightforward, with most questions requiring a simple tick in the appropriate box that suit you. This includes questions (1,2,3, and 4) and time designated for this part is 20 minutes. Please read with me each question and follow the instructions.

Now turn the questionnaire one more time to the left, open the cover and turn the right column open. You will see now the visual assessment part of the questionnaire which, include question number (5, 6, and 7) in the left and middle column of the open sheet of the questionnaire. This part will take about 30 minutes. It needs a prompt response and precise following to the orderly presented slides. In these questions you will view pairs of slides on the front screens, except for question (7), where there will be one presented slide each time. When I call the number of the presented slide, please check that you are in the right track. If in case you are not doing the same slide we are doing i.e. missed one of the presentations, please ignore your last response and leave it blank but proceed with us from the one you picked last. I would like also to stress that you have to relate your answers to your actual momental perception; in other words do not try to bargain your thoughts, but allow direct responses. On the other hand, it is so possible that you might find it useful to evoke your memories against scenes that you see in particular slides. Please read with me each question and follow the instructions.

On the right hand side of the questionnaire, question number 8 and 9 are again personal kind of questions, what you would need to do is to tick the right answer that fit your condition.

Now I shall start explaining the first question in this session, and proceed in my description as we move on.

(Q1): Educational background and level of education.

Please tick one box under each column of this question titled: area of speciality and degree. Time designated for this question is 2 minutes.

(Q2): Age in relation to geographical location.

You are asked to spread your age into five years intervals and locate each five years upon places (mentioned in the four columns titled: rural, farm, suburb, and urban area) you have spent those five years of your life in. For example: if (x) is aged 35 and spent his first 9 years in a palm garden, the next 5 years in a city and the last 21 years in a village. He would tick the first and second box under the title palm garden, the following tick would be placed in the third box under the title city and finally he would tick the fourth, fifth and sixth box under the village column.

Each tick will be indicated by a number that expresses the landscape type of this geographical location that fits your situation. For example, if the above person, x, ticked the first and second box under the title palm garden, he will put number (1) inside the two boxes to indicate arid landscape. Do not, ever, tick the numbered boxes on the far left column of the question only. Time designated for this question is 3 minutes.

(Q3): Recreational preferences.

In this question rank your recreational preferences by placing your value (-2 to 2) in the boxes provided to the right of each recreational place according to the following scale:

2 = greatly like

1 = like

0 = neither like nor dislike

-1 = dislike

-2 = greatly dislike

You have four options to rank recreational facilities in the three different landscapes. Time designated for this question is 3 minutes.

(Q4): Personal interests in activities related to desert landscapes.

In this question you have 16 statements representing some of the most popular interests, hobbies and outdoor activities that can be somehow related to the natural environment. You are asked to rank these statements in the scale of (-2 to 2) according to the following scale:

2 = strongly interested

1 = interested

0 = neither interested nor not interested

-1 = not interested

-2 = strongly not interested.

You have to place one value in the box provided to the left of each statement. Please make sure that you are precisely and exactly representing yourself. Time designated for this question is 10 minutes.

(Q5): Familiarity with differences between native and exotic landscape.

Although there is no right and wrong answers in this questionnaire, question number (6) is the only exception. In this question you are asked to identify each plant and to decide whether it is native or exotic from your own common knowledge. However, you do not need to exert stressful thinking, neither spend too much time trying to remember nor hold consultation with your neighbours since such activities will work against the aim of the study. Your answers for the slides presented on the right screen must be recorded in the right column in your questionnaire and your answers for the slides presented on the left screen must be recorded in the left column in your questionnaire. In each column you have two options, native and exotic, you have to pick the corresponding box underneath native or exotic according to your knowledge, but never tick both boxes. You have to do the same thing for both right and left presented slides. The time designated for this question is 5 minutes or 30 seconds for each slide, which correspond to one minute to each presentation.

Q(6): Visual aesthetic perceptual assessment for natural landscape using semantic scale.

In this question you will view 10 slides on the right screen, one slide at each time. Your role is to rank the listed statements, one for each slide, against each slide in the scale of -2 to 2 where:

2 = strongly agree

1 = agree

0 = do not agree, neither disagree

-1 = disagree

-2 = strongly disagree

You will find that these 10 statements are divided into two groups, the first 5 statements are positive descriptive statements and the last 5 statements are negative descriptive statements. Please notice that in both cases you are asked to use the same scale for the same correspondents. I will read each statement loudly twice with 5 seconds time interval, so please do not pay much attention to the reading of the statement, but rather concentrate in listening to the statements while watching the scenes. There is no ideal answer, rather try to represent yourself independently from any side thoughts and from trying to work toward serving a particular objective. The time designated for this question is 5 minutes or 30 seconds for each slide.

Q(7): Landscape preference for urban, rural and natural landscape.

In this question you will view 20 presentations in pairs of slides on the right and left screens. You need to indicate your preference for each slide by using the following scale:

2 = strongly like

1 = like

0 = do not like, neither dislike

-1 = dislike

-2 = strongly dislike

Your answers for the slides presented on the right screen must be recorded in the right column of your questionnaire and your answers for the slides presented on the left screen must be recorded on the left column of your questionnaire. In each column you have five options of the scale mentioned above, you have to pick the corresponding box that best indicate your likeness, but never tick more than a box in each column at a time. You have to do the same thing for both right and left presented slides at each presentation. Please bear in mind that your tick in a column at a time should not necessarily express exactly the opposite the value you ticked in the other column. You can tick the same value in both columns at a certain presentation if this really expresses your preference. The time designated for this question is 10 minutes or 30 seconds for each presentation.

Q(8): Survey on participants' private gardens

In this question you are asked about your private garden. In the first column titled location, locate your house's private garden by ticking one of vertically listed options. To the right is the second column, which is titled 'garden's planting ratio' tick one of the vertically listed options indicating how much your garden is densely planted. In the third column, you are asked to describe the type of plantations your garden possesses. What you need to do is to tick the appropriate type of plantation type that fits your garden. Time designated for this question is 2 minutes.

Q(9): Participants' Awareness of design values in urban landscapes.

In this question you are asked to rank the following statements in the following scale:

2 = strongly agree

1 = agree

0 = do not agree, neither disagree

-1 = disagree

-2 = strongly disagree

I will read these statements loudly and you might ask questions at any time if you got the feeling that you are doubtful about your understanding of a statement or do not understand it well. The designated time for this question is 10 minutes.

This is the end of this session.

Thank you very much for coming today and I really appreciate your time, patience, and urge to stay until the end of the session. Anyone, who would like to comment, ask, or place any other sort of contribution to the study, can use one of the following correspondence addresses:"

From now up to 10.9.98:

*Ashraf Alturki
P.O.Box: 20128
Medina,
Saudi Arabia*

From 11.9.98 to 30.10.01

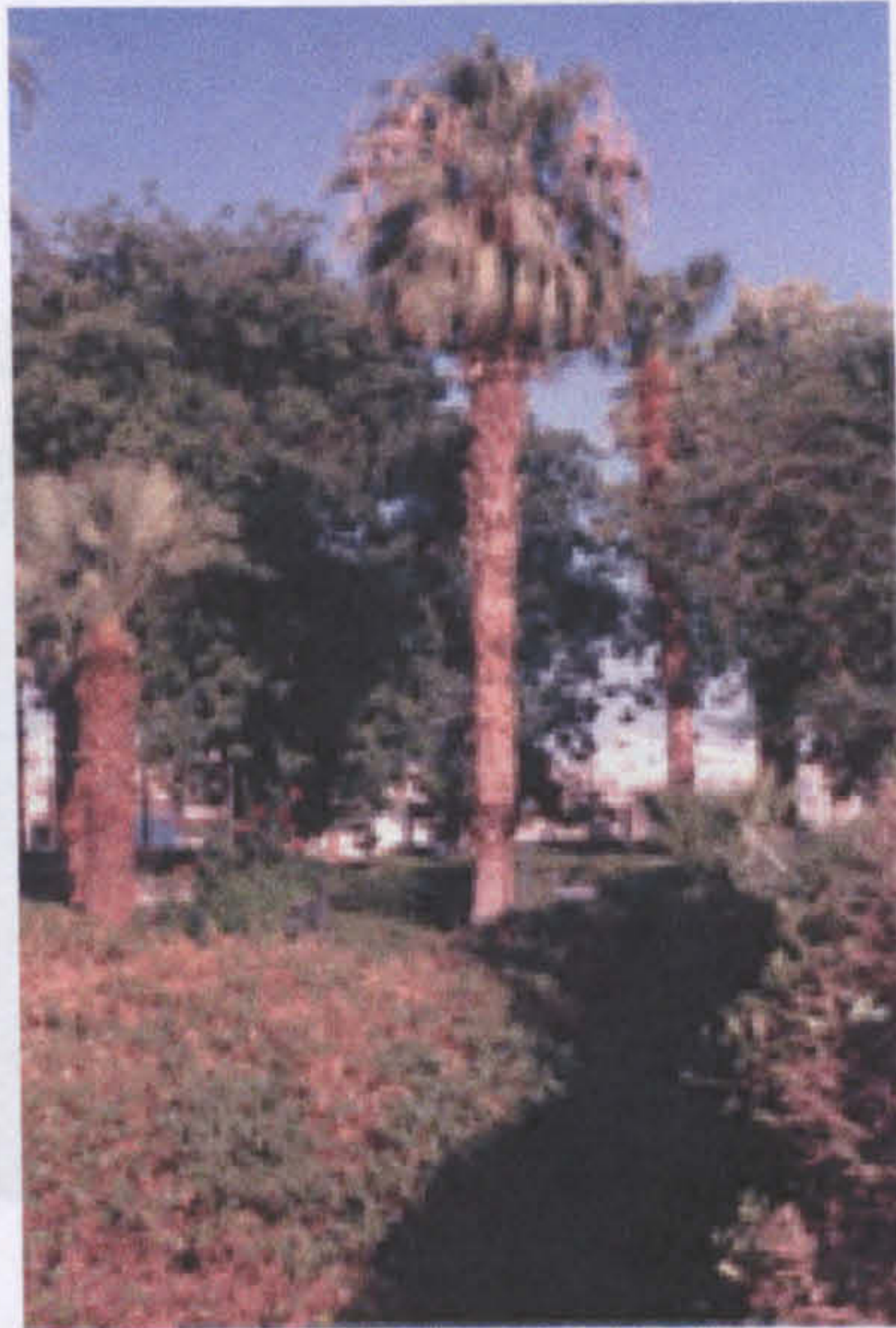
*Ashraf Alturki
113 Headford Gardens
Sheffield, S3. 7XB
England.*

At any time <electronic mail>

<alp96aa@sheffield.ac.uk>

The meeting with participants have always been carried out in a continuous flow of hospitality, urge, warmth, and incredible generosity in giving knowledge and time which has annexed this part of data collection a wonderful feeling of co-operative teamwork.

Figure: 9-7, Images used in the assessment of landscape perception and preference.



1. 1. L



1. 1. R



1. 2. L



1. 2. R



1. 3. L



1. 3. R

Figure 9-3. Images used in perception of desert landscape.



1.4.L



1.4.R



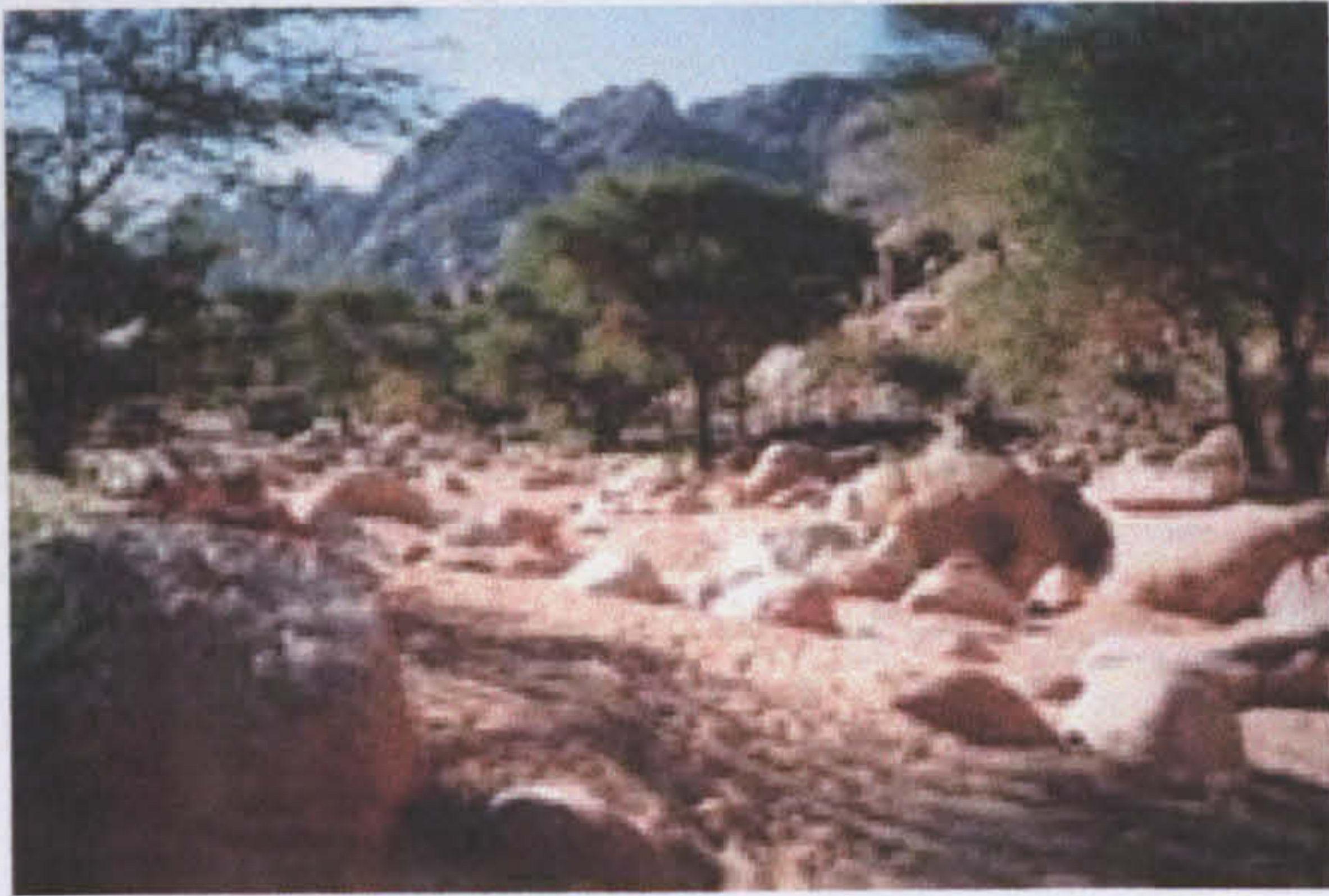
1.5.L



1.5.R



Figure: 9-8, Images used in perception of desert landscape.



2. 1



2. 2



2. 3



2. 4



2. 5



2. 6



2.7



2.8



2.9



2.10

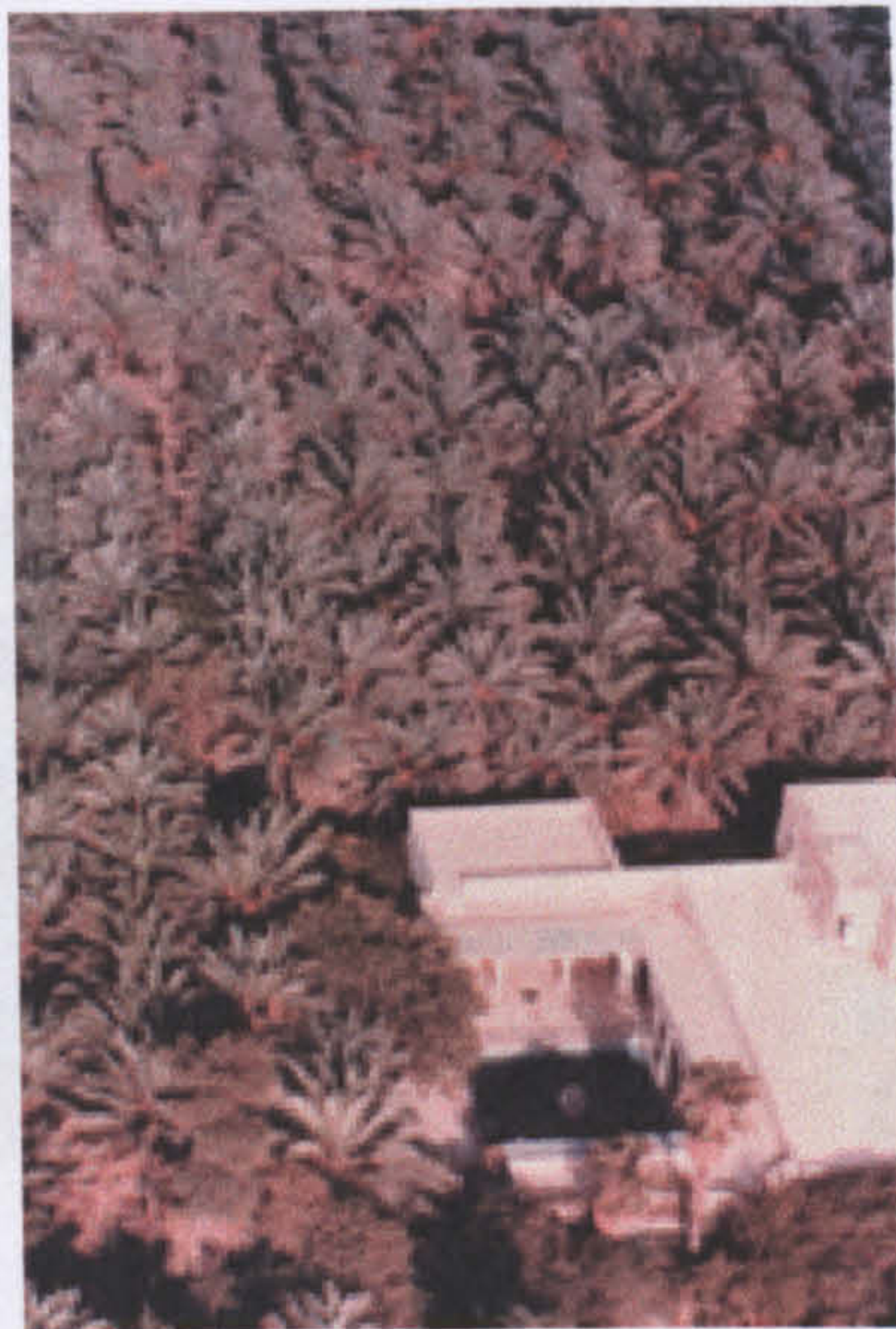
Figure: 9-9, Images used in the landscape preference for recreational landscapes.



3. 1. L



3. 1. R



3. 2. L



3. 2. R



3. 3. L



3. 3. R



3.4.L



3.4.R



3.5.L



3.5.R



3. 6. L



3. 6. R



3. 7. L



3. 7. R



3. 8. L



3. 8. R



3. 9. L



3. 9. R

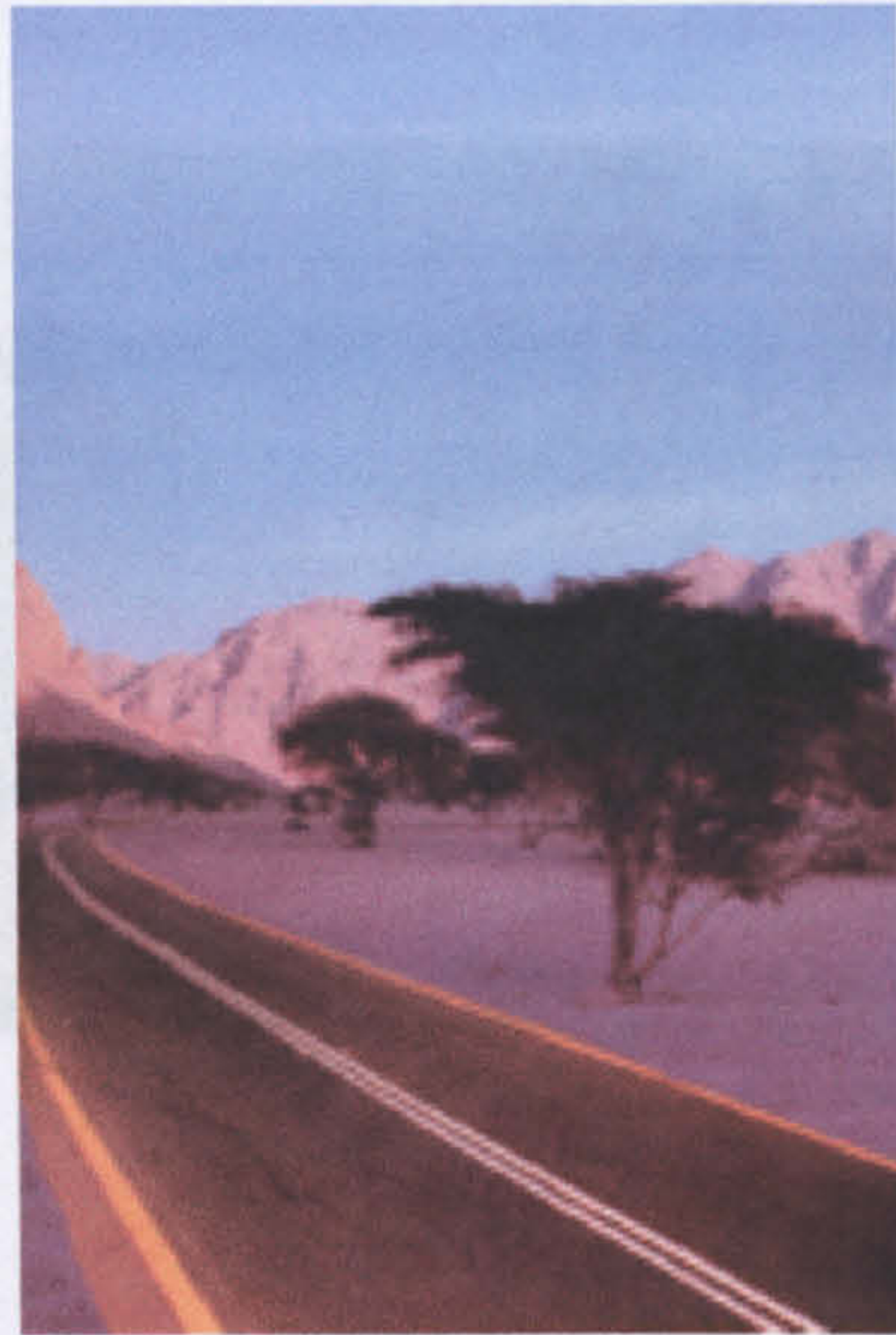


3. 10. L



3. 10. R

Figure: 9-10, Images used in landscape preference, for urban open spaces.



4. 1. L



4. 1. R



4. 2. L



4. 2. R



4. 3. L



4. 3. R



4.4. L



4.4. R

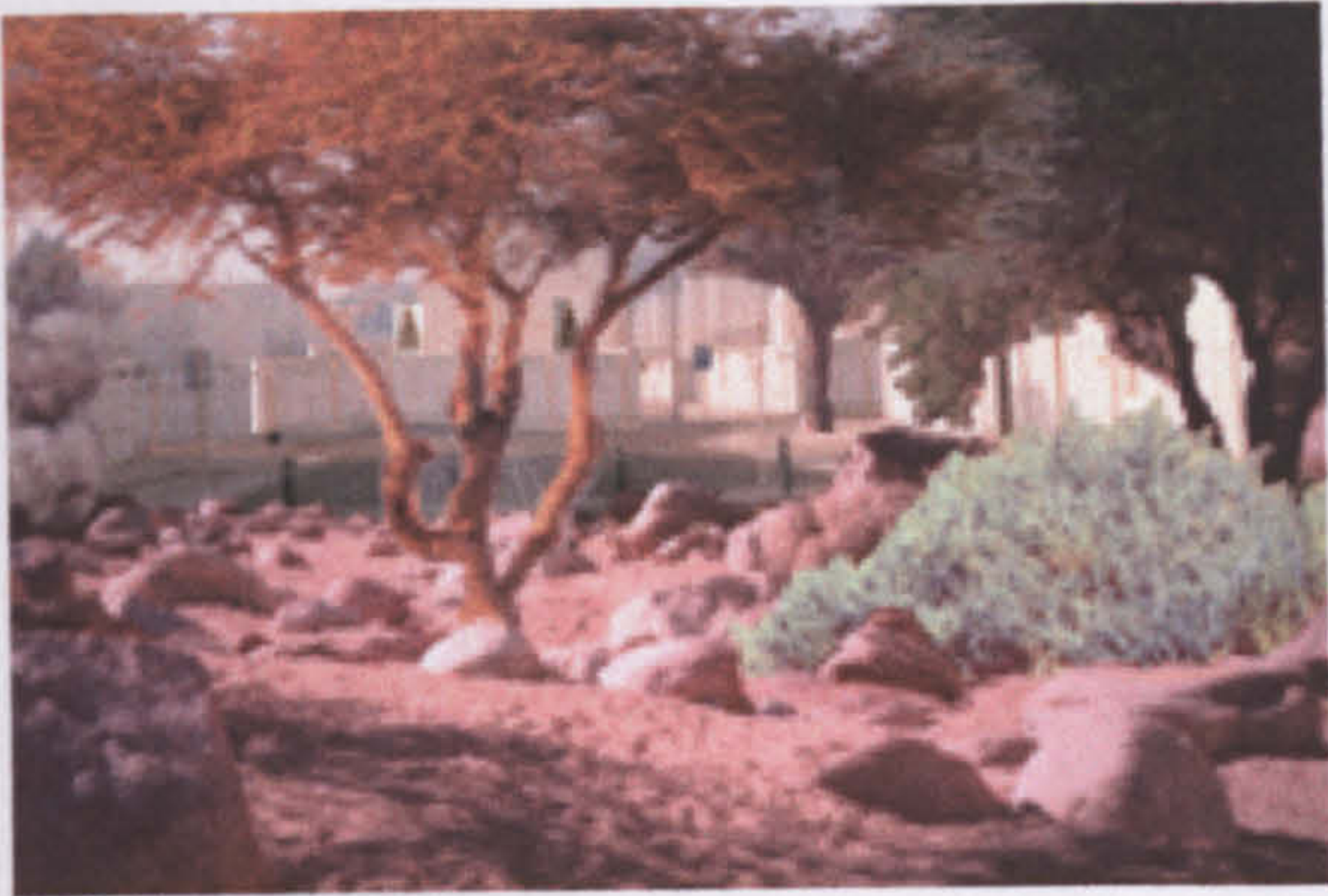


4.5. L



4.5. R





4. 6. L



4. 6. R



4. 7. L



4. 7. R



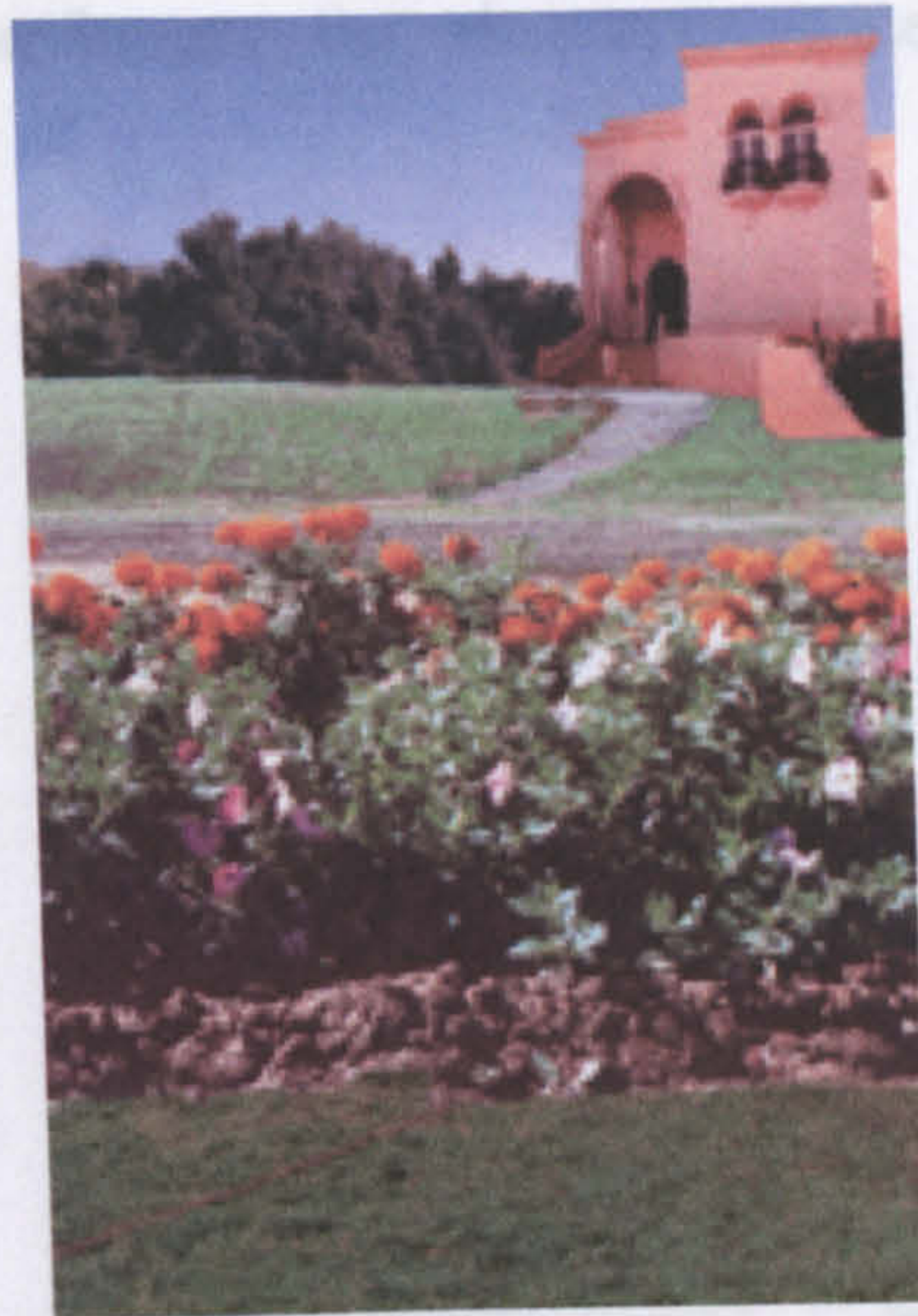
4. 8. L



4. 8. R



4. 9. L



4. 9. R



4. 10. L



4. 10. R



10 Results.

Attitudes towards designed landscapes in two desert cities: Medina, Saudi Arabia and Tucson, Arizona.

10. The Comparative Study, Results.

Following preliminary sorting and analysis of the data non parametric statistics tests were used to establish differences in comparisons. Mann Whitney U test was used for pairs comparisons. For comparisons involved 3 or more groups the Kruskal Wallace H test was used.

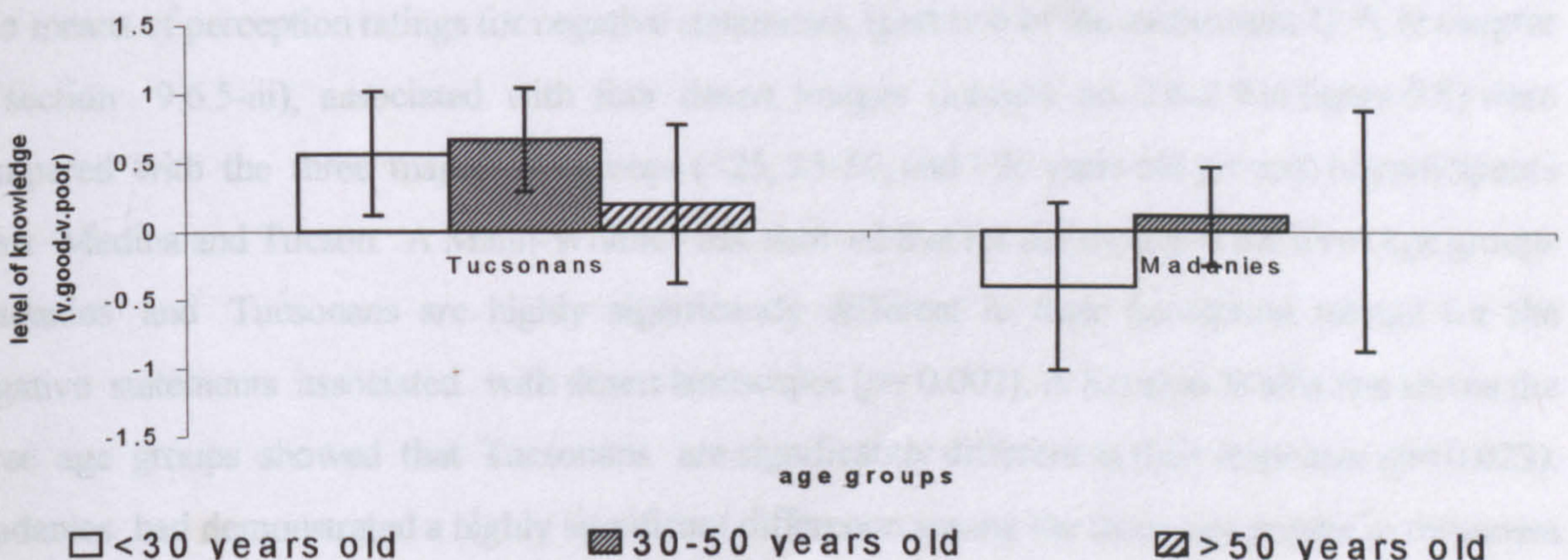
10.1. The effect of age, (<25, 25-50, and >50 years old groups) on participants' knowledge, perception, and preference of exotic and native desert landscapes.

10.1.1. Knowledge of desert natural environments.

For the purpose of this study, participants were categorised under three major age groups:

i) <25 year old group (Madanies, n=33; Tucsonans, n=12), ii) 25-50 years old group (Madanies, n=140; Tucsonans, n=118), and iii) >50 years old group (Madanies, n=20; Tucsonans, n=21). The means of responses toward the 10 images (native and exotic plants, part one of the assessment Q. 5, see chapter 9, section 9.6.5-iii, images; 1.1.R-1.5.R and 1.1.L-1.5.L, see figure 9.7) representing participants' levels of knowledge of desert environments were correlated with the three major age categories of participants from Medina and Tucson. A Mann-Whitney test performed on the means of the 3 age groups showed that Madanies and Tucsonans are significantly different in term of ability to distinguish between native and exotic desert environments ($p=0.01$). A Kruskal-Wallis test across the three age groups showed that Tucsonans are not significantly different in their knowledge of desert environments ($p=0.256$). Madanies also demonstrated no significant difference among the three age groups in responses in the knowledge assessment ($p=0.07$). Tucsonans and Madanies in the <30 years old age group are highly significantly different ($p=0.002$), and likewise among 30-49 years old group ($p=0.015$), but are insignificantly different among >50 years old group, ($p=0.436$). Figure (10.1) shows levels of knowledge of Tucsonans and Madanies within each age group. The most marked variation in level of knowledge of desert

Figure: 10.1, Effect of age on participants' knowledge of desert environments. Error bars represent 1 standard deviation.

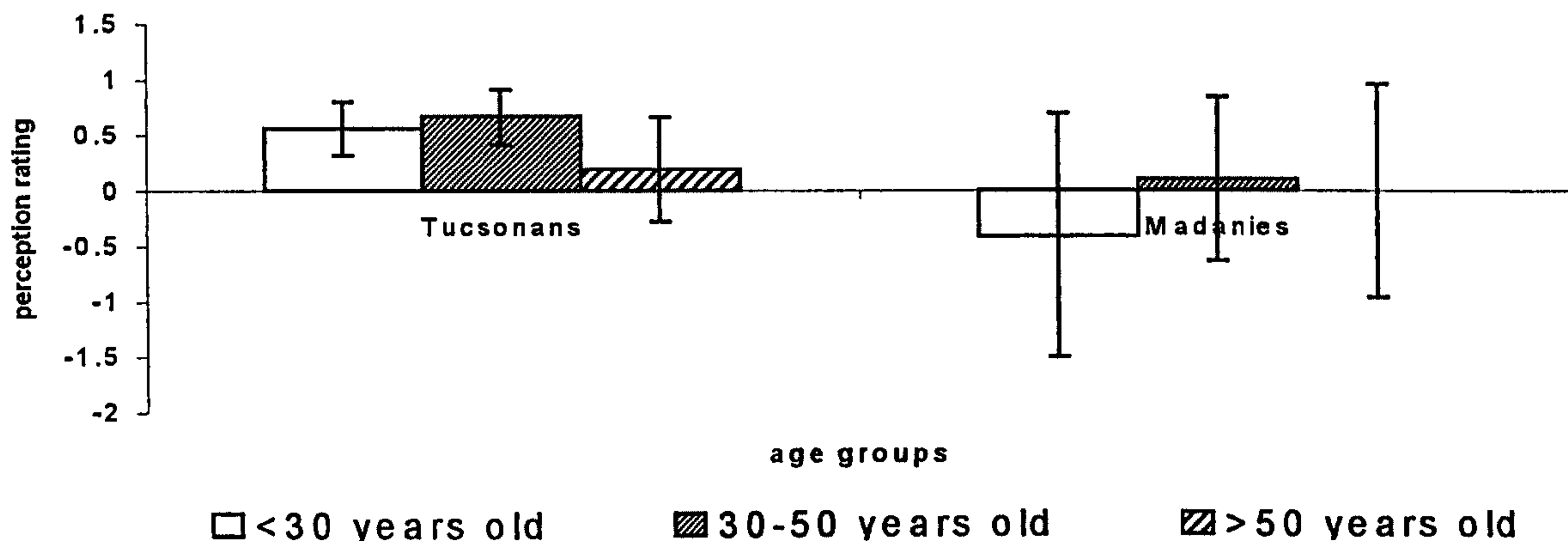


environments is in the young age group (<30 years old).

10.1.2. Perception of positive statements associated with desert landscapes.

The means of perception ratings for positive statements, (part two of the assessment Q. 6, in chapter 9, section 9.6.5-iii), associated with five desert images (images no. 2.1-2.5 in figure 9.8) were compared with the three major age groups (<25, 25-50, and >50 years old groups) of participants from Medina and Tucson. A Mann-Whitney test on the means of the 3 age groups showed that Madanies and Tucsonans are not significantly different in their perception ratings for the positive statements associated with desert landscapes ($p= 0.125$). A Kruskal-Wallis test across the three age groups showed that Tucsonans are significantly different in their responses ($p= 0.018$). Madanies on the other hand demonstrated no significant difference among the three age groups in responses to positive perception of desert landscapes ($p= 0.089$). Tucsonans and Madanies in (<30 years old) age group are not significantly different ($p= 0.151$), likewise the 30-49 years old group ($p= 0.222$), and the >50 years old group, ($p= 0.548$). Figure (10.2) shows perception ratings of Madanies and Tucsonans within each age group. The largest variance in perception of positive statements of desert landscapes is associated with the young age group (<25 years old).

Figure: 10.2, Effect of age on participant's perception of positive statements associated with images of desert landscapes. Error bars represent 1 standard deviation.

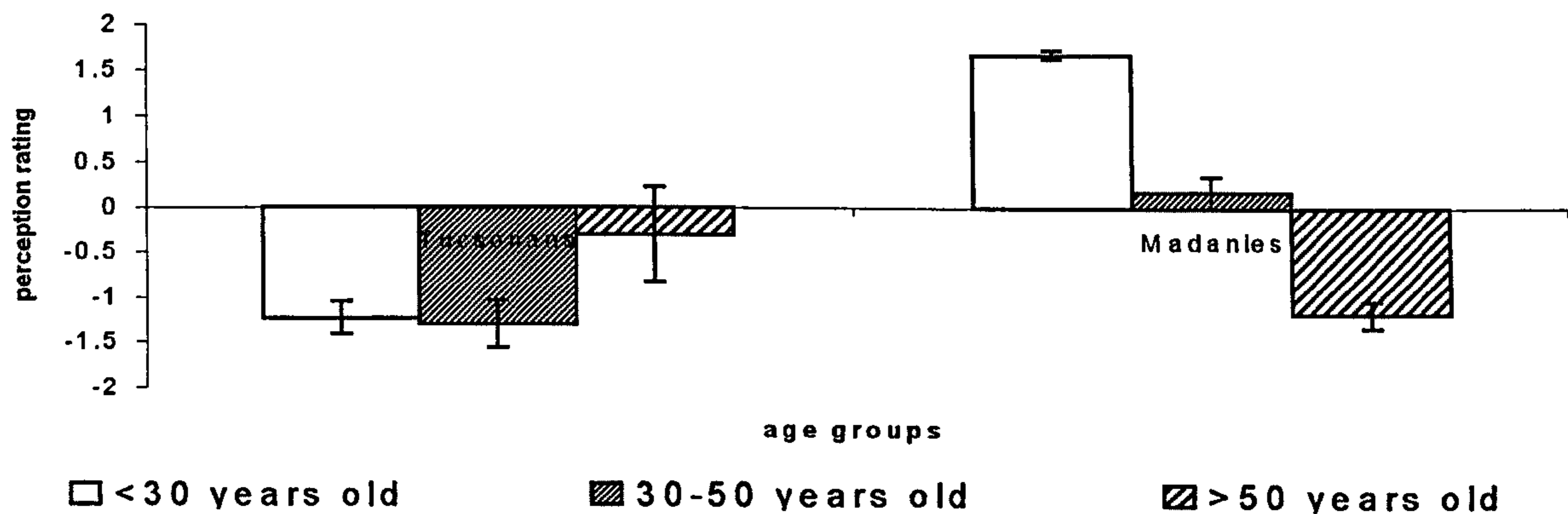


10.1.3. Perception of negative statements associated with desert landscapes.

The means of perception ratings for negative statements, (part two of the assessment Q. 6, in chapter 9, section 9.6.5-iii), associated with four desert images (images no. 2.6-2.9 in figure 9.8) were compared with the three major age groups (<25, 25-50, and >50 years old groups) of participants from Medina and Tucson. A Mann-Whitney test showed that for the means of the three age groups Madanies and Tucsonans are highly significantly different in their perception ratings for the negative statements associated with desert landscapes ($p= 0.002$). A Kruskal-Wallis test across the three age groups showed that Tucsonans are significantly different in their responses ($p= 0.023$). Madanies had demonstrated a highly significant difference among the three age groups in responses

to negative perception of desert landscapes ($p=0.007$). Tucsonans and Madanies in the <25 years old age group are significantly different ($p=0.029$), likewise among the 30-49 years old group ($p=0.029$), and the >50 years old group, ($p=0.029$). Figure (10.3) shows perception ratings of Madanies and Tucsonans within each age group. In contrast to all other age x erty groups young Madanies have a strongly negative view of desert landscapes (i.e. they strongly agree with negative statements on desert landscapes).

Figure: 10.3, Effect of age on participants' perception of negative statements associated with images of desert landscapes. Error bars represent 1 standard deviation.

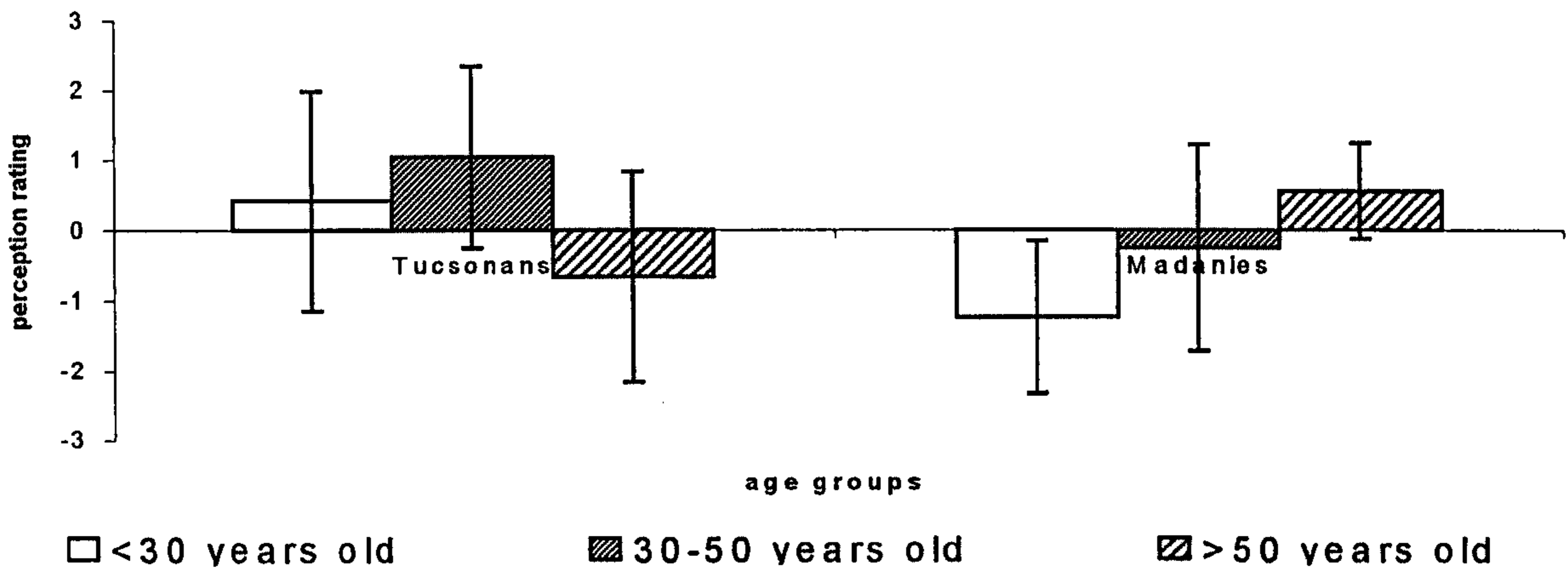


10.1.4. Perception of response to 'exotic' landscape.

The scores of perception ratings for response, (see part two in the assessment, Q. 6, in chapter 9, section 9.6.5-iii), to exotic landscape (images no. 2.10, figure 9-8) were compared with the three major age groups (<25, 25-50, and >50 years old groups) of participants from Medina and Tucson. A Mann-Whitney test showed that for the means of the three age groups Madanies and Tucsonans are highly significantly different in their perception ratings ($p<0.001$). A Kruskal-Wallis test across the three age groups showed that Tucsonans are highly significantly different in their responses ($p<0.001$). Madanies also demonstrated a highly significant difference among the three age groups in responses to a perception of an 'exotic' landscape ($p<0.001$). Tucsonans and Madanies in the <30 years old age group are highly significantly different ($p=0.002$), likewise among the 30-49 years old group ($p<0.001$), and the >50 years old group, ($p=0.007$). Figure (10.4) shows perception ratings of Madanies and Tucsonans within each age group. There is a considerable variation between Madanies and Tucsonans in response to 'exotic' landscapes across all age groups. With the exception of the >50 years old age group of Tucsonans, Tucsonans are more supportive, to the suggested response to the 'exotic' landscape described in the assessment as 'alien,' than Madanies. On the other hand, it is interesting to learn that (>50 years old) age group from Medina and Tucson

are in sharp contrast, where Madanies were more supportive to the response of 'alien' of the 'exotic' landscape, than Tucson in this particular age group.

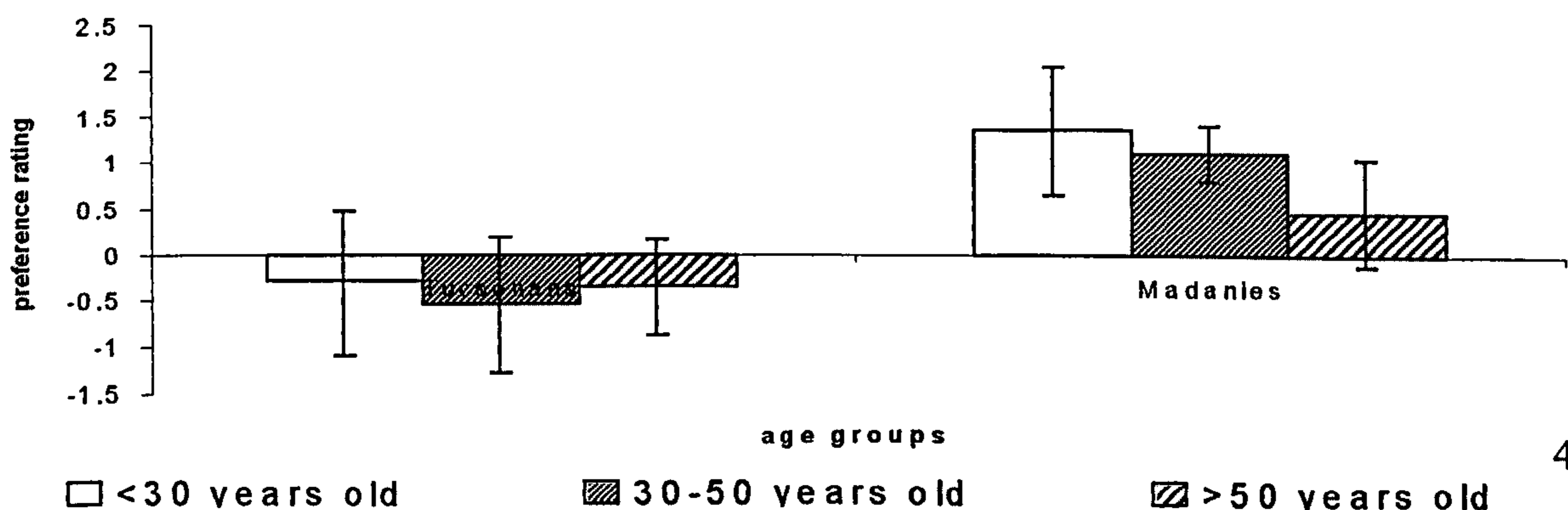
Figure: 10.4, Effect of age on participants' perception of response to exotic landscape. Error bars represent 1 standard deviation.



10.1.5. Preference rating for exotic garden landscapes.

The means of preference ratings for exotic garden landscapes, (see part three, Q. 7 in chapter 9, section 9.6.5-iii; images no. 3.R.1 - 3.R.10 in figure 9-9) were compared with the three major age groups (<25, 25-50, and >50 years old groups) of participants from Medina and Tucson. A Mann-Whitney test on the means of the three age groups showed that Madanies and Tucsonans are highly significantly different in their preference ratings of exotic garden landscapes ($p < 0.001$). A Kruskal-Wallis test across the three age groups showed that Tucsonans are not significantly different in their responses ($p < 0.756$). Madanies, however, demonstrated a highly significant difference among the three age groups in preference ratings of exotic garden landscapes ($p < 0.009$). Tucsonans and Madanies in the <25 years old age group are highly significantly different ($p < 0.001$), likewise among the 30-49 years old group ($p < 0.001$), and the >50 years old group, ($p = 0.004$). Figure (10.5) shows perception ratings of Madanies and Tucsonans within each age group. As can be seen preference ratings of the Medina group strongly favour exotic garden landscape in general, when Tucsonans across the three age groups show a general 'dislike' in their preference rating.

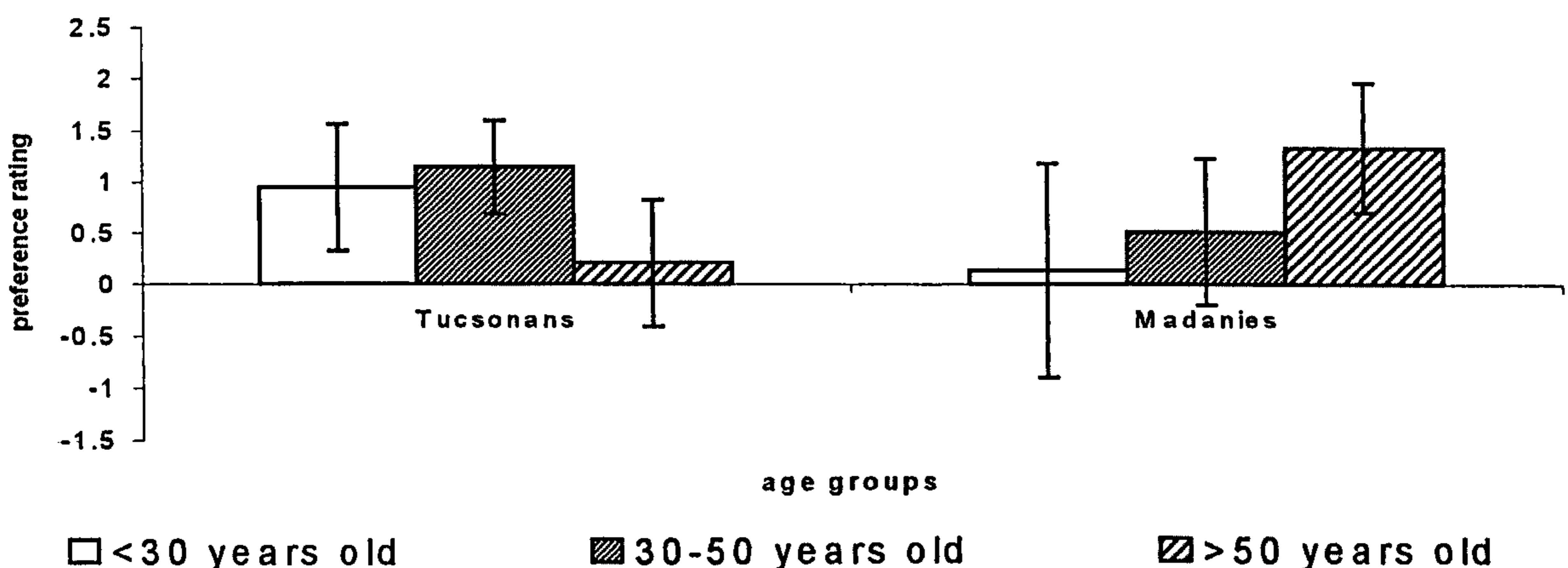
Figure: 10.5, Effect of age on participants' preference ratings of exotic garden landscapes. Error bars represent 1 standard deviation.



10.1.6. Preference rating for desert garden landscapes.

The means of preference ratings for desert garden landscapes, (see part three of the assessment, Q. 7 in chapter 9, section 9.6.5-iii; images no. 3.L.1 - 3.L.10 in figure 9-9) were compared with the three major age groups (<25, 25-50, and >50 years old groups) of participants from Medina and Tucson. A Mann-Whitney test performed on the means of the three age groups showed that that Madanies and Tucsonans are highly significantly different in their preference ratings of desert garden landscapes ($p= 0.003$). A Kruskal-Wallis test across the three age groups showed that Tucsonans are significantly different in their responses ($p= 0.006$). Madanies, however, demonstrated no significant difference among the three age groups in preference ratings of desert garden landscapes ($p= 0.012$). Tucsonans and Madanies in the <25 years old age group are not significantly different ($p= 0.105$), they are however significantly different among the 30-49 years old group ($p= 0.035$), and highly significantly different among the >50 years old group, ($p= 0.004$). Figure (10.6) shows perception ratings of Madanies and Tucsonans within each age group. There is a clear drop in the preference ratings of Tucsonans >50 age group, whilst Madanies in comparison give a much higher score in this particular age group. The most notable observation that can be made here is that, with the exception of the >50 years old Tucsonans and the <30 years old Madanies groups, a positive attitude towards desert landscapes across age groups were largely positive.

Figure: 10.6, Effect of age on participants' preference ratings of desert garden landscapes. (Error bars represent 1 standard deviation).

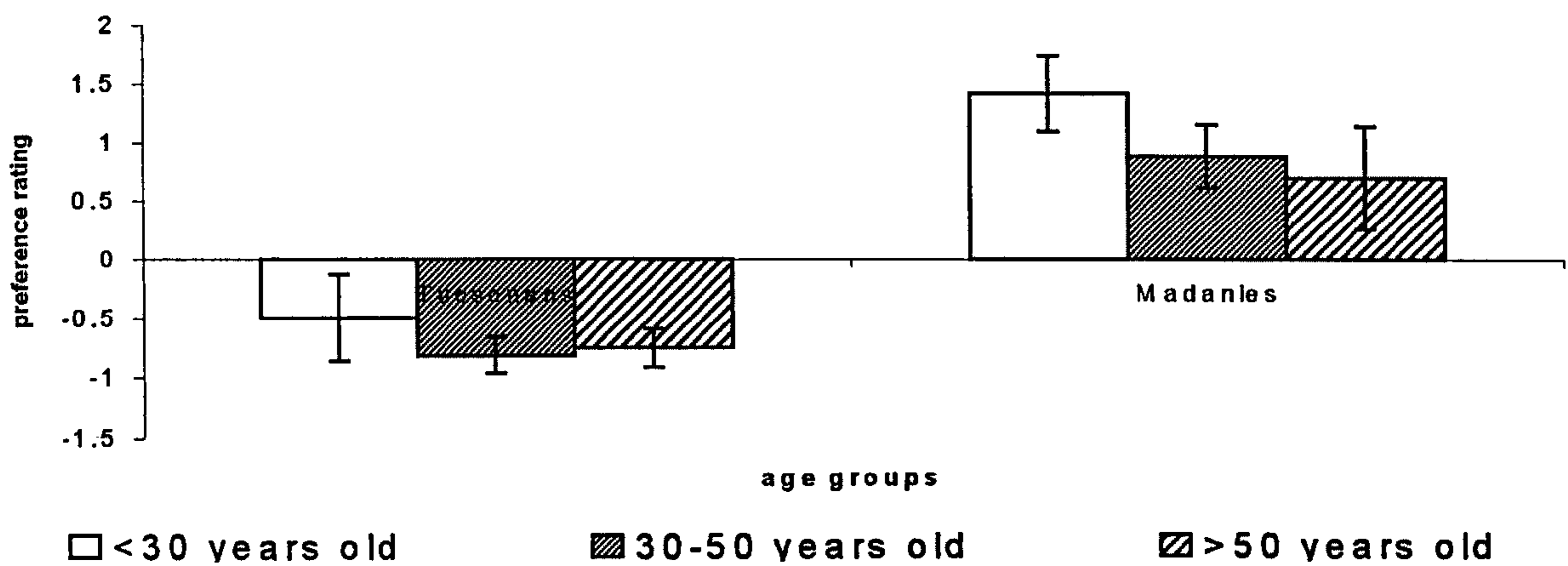


10.1.7. Preference rating for exotic urban landscapes.

The means of preference ratings for exotic urban landscapes, (see part three in the assessment, Q. 7 in chapter 9, section 9.6.5-iii; images no. 4.R.1 - 4.R.10 see figure 9.10) were compared with the three major age groups (<25, 25-50, and >50 years old groups) of participants from Medina and Tucson. A Mann-Whitney test on the means of the three age groups showed that Madanies and Tucsonans are highly significantly different in their preference ratings of exotic garden landscapes ($p < 0.001$). A Kruskal-Wallis test across the three age groups showed that Tucsonans are highly

significantly different in their responses ($p= 0.007$). Madanies, also demonstrated a highly significant difference among the three age groups in preference ratings of exotic urban landscapes ($p= 0.001$). Tucsonans and Madanies in the <30 years old age group are highly significantly different ($p< 0.001$), likewise among the 30-49 years old) group ($p< 0.001$), and the ?50 years old group, ($p< 0.001$). Figure (10.7) shows preference ratings of Madanies and Tucsonans within each age group. There are an extreme difference between Tucsonans and Madanies in this particular landscape assessment with Madanies responded positively to exotic urban landscape and Tucsonans responding negatively.

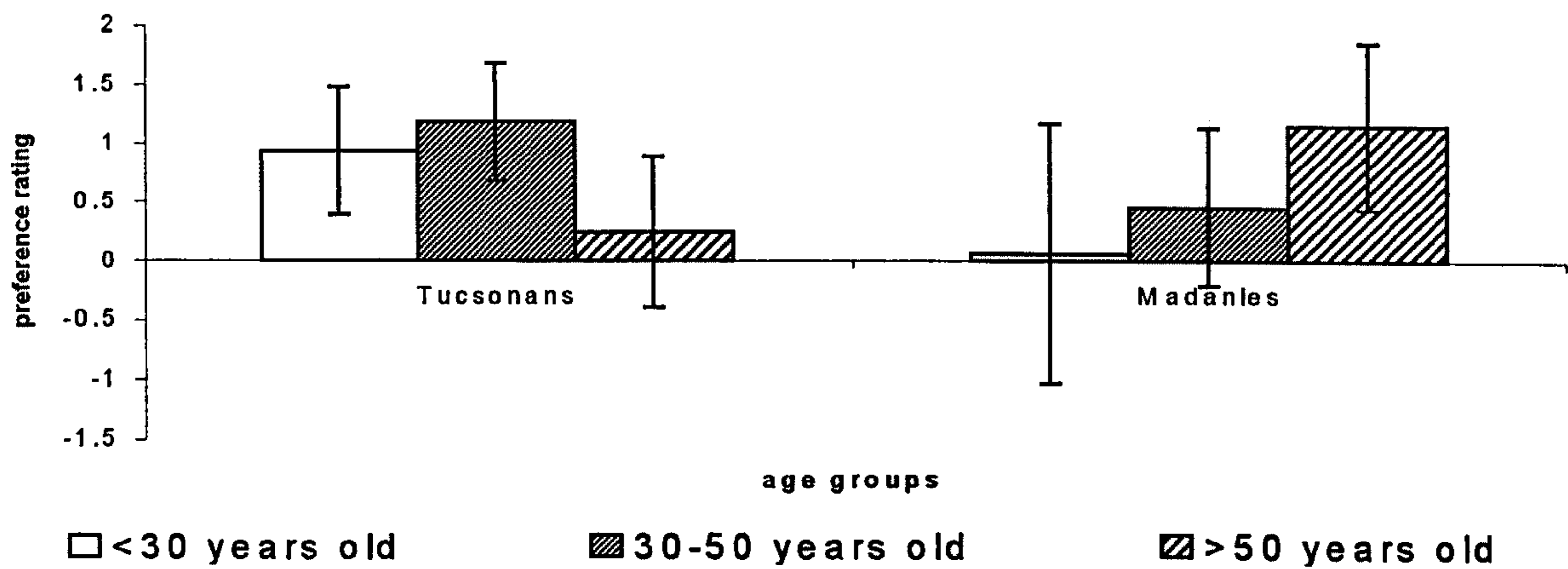
Figure: 10.7, Effect of age on participants' preference ratings of exotic urban landscapes. (Error bars represent 1 standard deviation).



10.1.8. Preference rating for desert urban landscapes.

The means of preference ratings for desert urban landscapes, (see part three of the assessment, Q. 7 in chapter 9; images no. 4.L.1 - 4.L.10, see figure 9-10) were compared with the three major age groups (<25, 25-50, and >50 years old groups) of participants from Medina and Tucson. A Mann-Whitney test performed on the three age groups showed that Madanies and Tucsonans are highly significantly different in their preference ratings of exotic garden landscapes ($p= 0.006$). A Kruskal-Wallis test across the three age groups showed that Tucsonans are significantly different in their responses ($p= 0.01$). Madanies, also demonstrated significant difference among the three age groups in preference ratings of exotic urban landscapes ($p= 0.018$). Tucsonans and Madanies in the <25 years old age group are significantly different ($p= 0.029$), likewise among the 30-49 years old group ($p= 0.029$), and the ?50 years old) group, ($p= 0.029$). Figure (10.8) shows preference ratings of Madanies and Tucsonans within each age group. as in previous assessments the main variations in responses are associated with young and old groups.

Figure: 10.8, Effect of age on participants' preference ratings of desert urban landscapes. (Error bars represent 1 standard deviation).

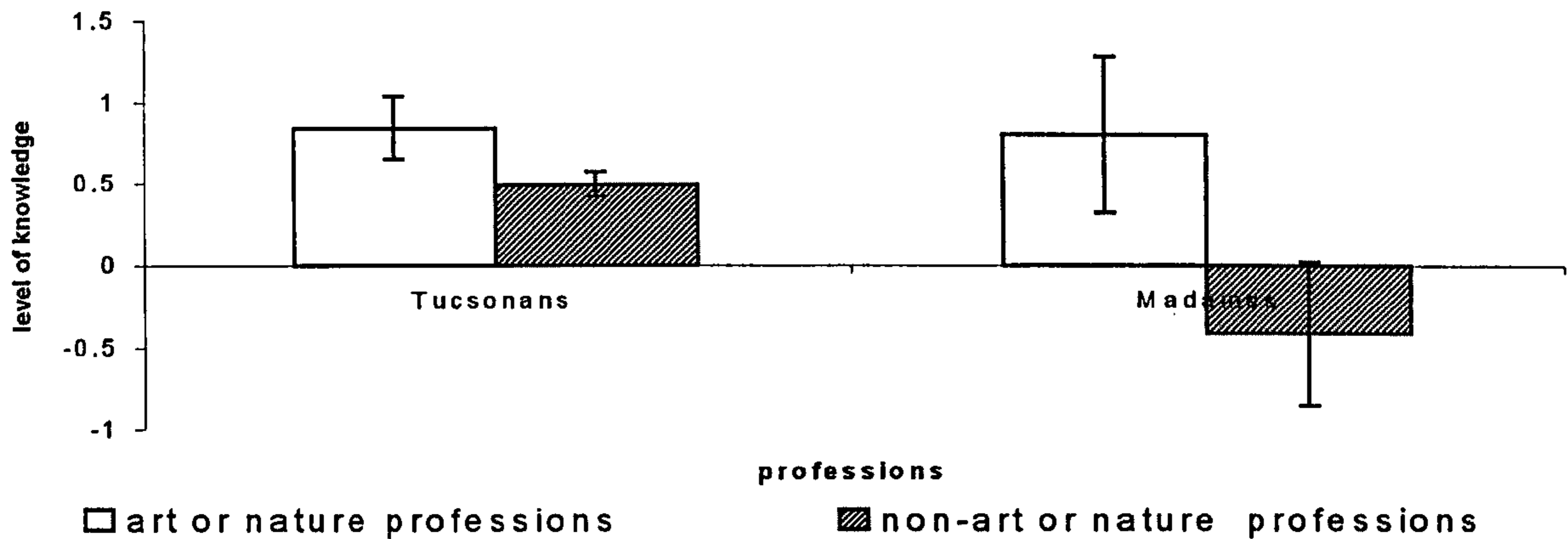


10.2. The effect of knowledge of desert landscape gained by formal education, on perception for desert landscape.

10.2.1. Knowledge of desert natural environments.

For the purpose of this study, professions of participants were divided into two major categories: i) art or nature related professions (landscape, architecture, planning, fine art, agriculture, biological science, geography) (Madanles $n=64$ and Tucsonans $n=42$) and ii) non-art or nature professions (business, medicine, computer, engineering, law, administrative, technical trade, military, education, anthropology) (Madanles $n=129$ and Tucsonans $n=109$). The means of responses toward the 10 images (native and exotic plants, part one of the assessment Q. 5, see chapter 9, section 9.6.5-iii, images; 1.1.R-1.5.R and 1.1.L-1.5.L, see figure 9.7) representing participants' levels of knowledge of desert environments (very good, good, neither good nor poor, poor, very poor level of knowledge), were compared with the two major categories of profession of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the two professional groups showed that Madanles and Tucsonans are highly significantly different in term of their ability to distinguish between native and exotic desert environments ($p < 0.001$). The running of the same test across the two professional groups showed that Tucsonans are not significantly different in their knowledge of desert environments ($p = 0.029$). Madanles in contrast demonstrated a highly significant difference between the two professional groups ($p < 0.001$). Tucsonans and Madanles in art or nature professions are not significantly different ($p = 0.105$), however they are highly significant different among non-art or nature professional groups ($p = 0.002$). Figure (10.9) shows levels of knowledge of Tucsonans and Madanles within each profession group. Non-art or nature professional groups in Medina are the least knowledgeable of desert environments.

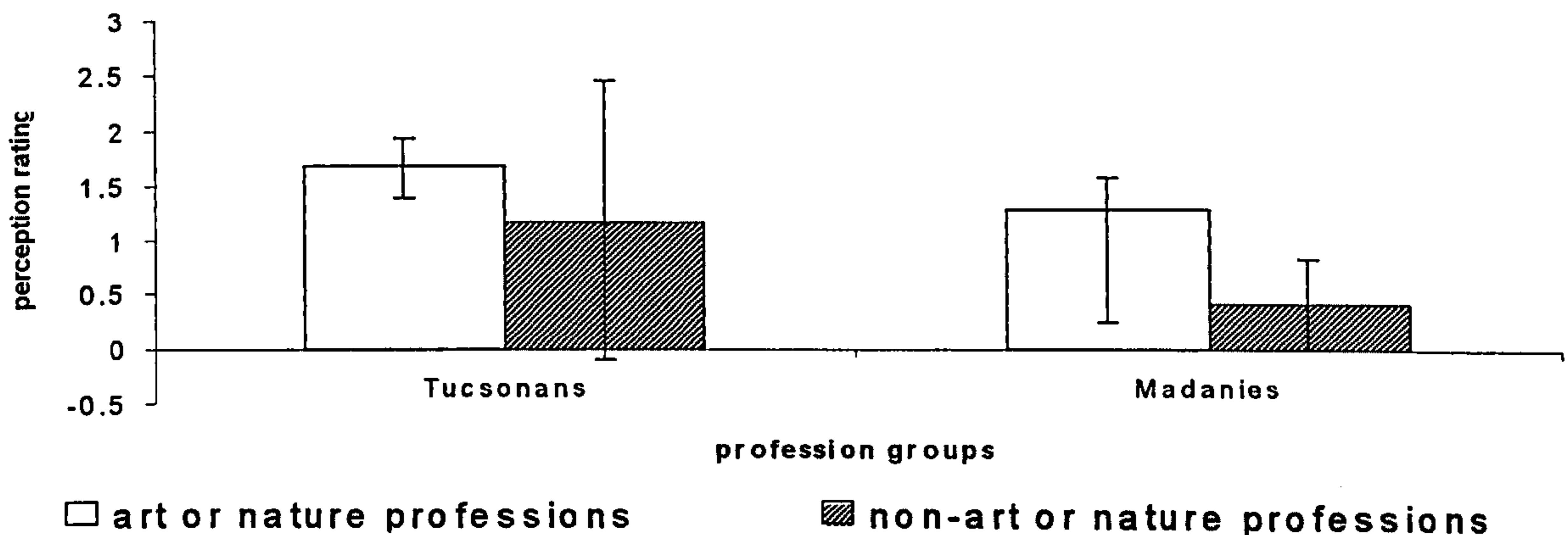
Figure: 10.9, Effect of formal education on knowledge of desert natural environments. (Error bars represent 1 standard deviation).



10.2.2. Perception of positive statements associated with desert landscapes.

The means of perception ratings for positive statements, (part two of the assessment Q. 6, in chapter 9, section 9.6.5-iii), associated with five desert images (images no. 2.1-2.5 in figure 9.8) were compared with the two profession groups (art or nature and non-art or nature professions) of participants from Medina and Tucson. A Mann-Whitney test performed on the means of the two professional groups showed that Madanians and Tucsonans are not significantly different in term of ability to distinguish between native and exotic desert environments ($p < 0.052$). The performance of the test across the two professional groups showed that Tucsonans are not significantly different in their knowledge of desert environments ($p = 0.032$). Madanians similarly demonstrated no significant difference among the two professional groups ($p = 0.222$). Tucsonans and Madanians in art or nature professions group are not significantly different ($p = 0.095$), neither are non-art or nature professional groups ($p = 0.421$). Figure (10.10) shows the actual values for this assessment.

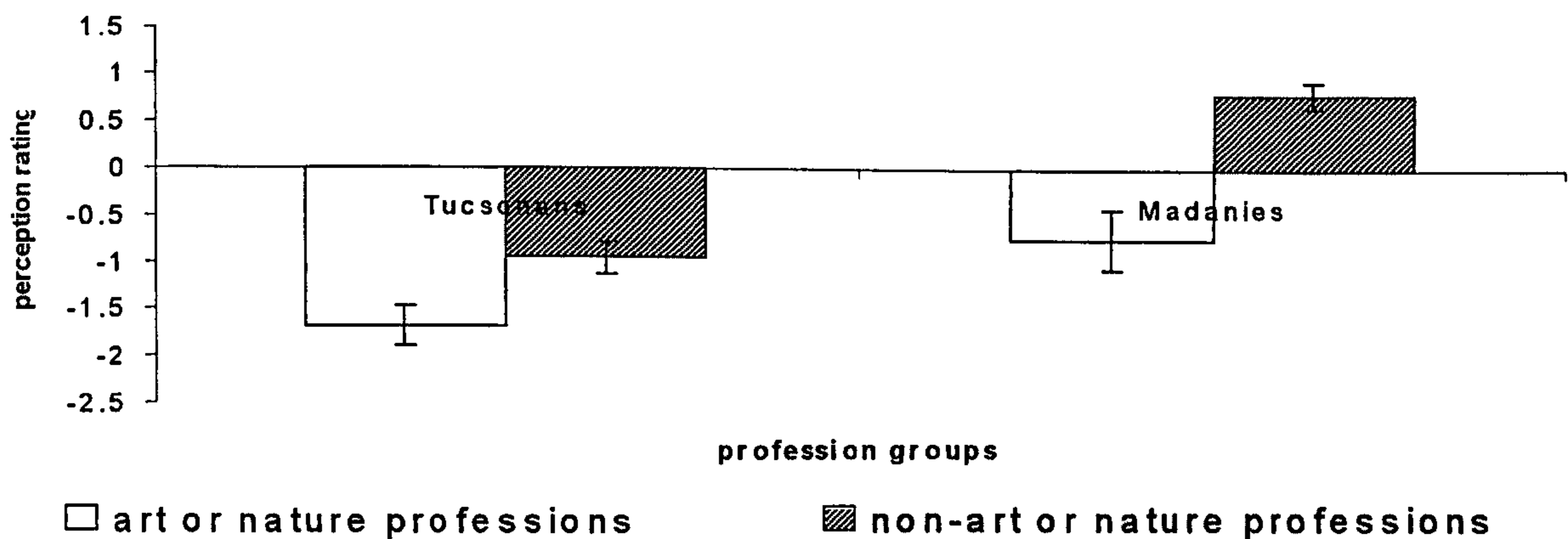
Figure: 10.10, Effect of formal education on perception of positive statements associated with desert landscapes. (Error bars represent 1 standard deviation).



10.2.3. Perception of negative statements associated with desert landscapes.

The means of perception ratings for negative statements, (part two of the assessment Q. 6, in chapter 9, section 9.6.5-iii), associated with four desert images (images no. 2.6-2.9 in figure 9.8) were compared with the two profession groups (art or nature and non-art or nature professions) of participants from Medina and Tucson. A Mann-Whitney test performed on the means of the two professional groups showed that Madanies and Tucsonans are highly significantly different in their perception ratings for the negative statements associated with desert landscapes ($p=0.005$). The running of the test across the two professional groups showed that Tucsonans are significantly different in their responses ($p=0.029$). Madanies also demonstrated a significant difference ($p=0.029$). Tucsonans and Madanies in art or nature professions are significantly different ($p=0.021$), as are those in the non-art or nature professions ($p=0.021$). Figure (10.11) shows perception ratings of Madanies and Tucsonans within each profession group. With the exception of Madanies in non-art or nature professional groups, all participants expressed a general rejection of negative perception of desert environment. Tucsonans in art or nature profession group were the most supportive of this rejection.

Figure: 10.11, Effect of formal education on perception of negative statements associated with desert landscapes. (Error bars represent 1 standard deviation).

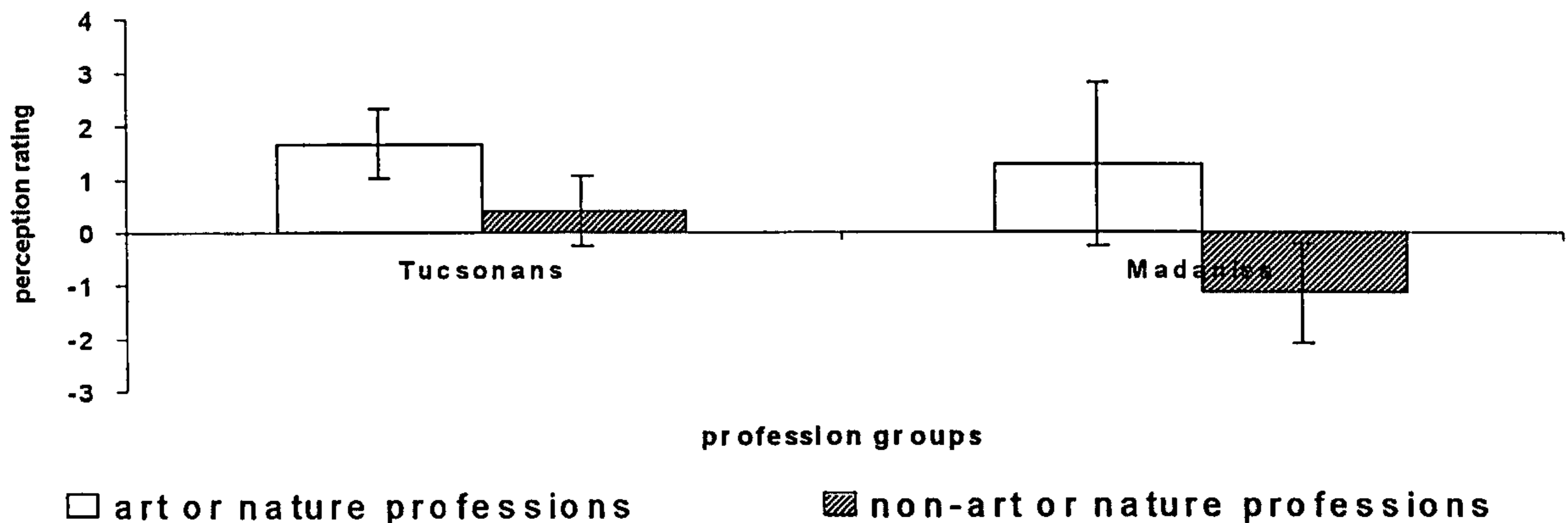


10.2.4. Perception of response to 'exotic' landscape.

The scores of perception ratings for response, (see part two in the assessment, Q. 6, in chapter 9, section 9.6.5-iii), to exotic landscape (images no. 2.10, figure 9-8) were compared with the two profession groups (art or nature and non-art or nature professions) of participants from Medina and Tucson. A Mann-Whitney test performed on the means of the two professional groups showed that Madanies and Tucsonans are highly significantly different in their perception ratings ($p<0.001$). performance of the test across the two professional groups showed that Tucsonans are significantly different in their responses ($p<0.001$). Madanies also demonstrated a highly significant difference

($p < 0.001$). Tucsonans and Madanies in art or nature profession groups are highly significantly different ($p < 0.001$), as are non-art or nature profession group ($p < 0.001$). Figure (10.12) shows perception ratings of Madanies and Tucsonans within each profession group. There is an apparent variance between Madanies and Tucsonans in perception of response to 'exotic' landscapes across all profession groups. However, there is a clear agreement, among participants in art or nature professional groups, perceive exotic landscape as 'alien.'

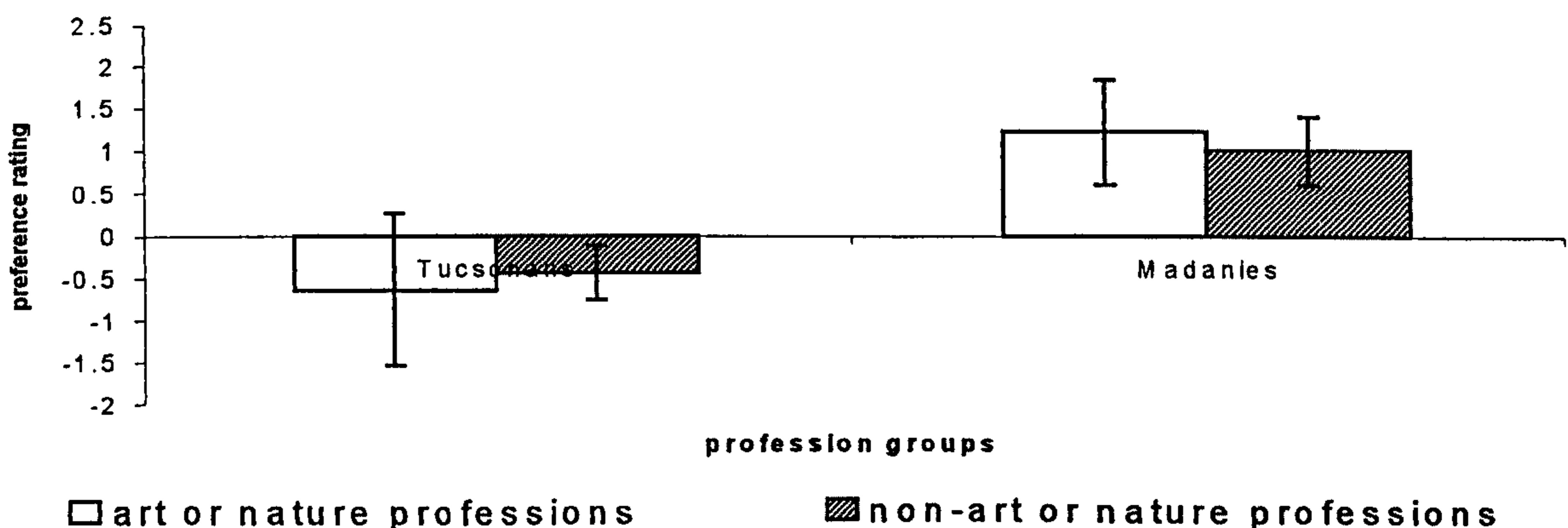
Figure: 10.12, Effect of formal education on perception of response to exotic landscape. (Error bars represent 1 standard deviation).



10.2.5. Preference rating for exotic garden landscapes.

The means of preference ratings for exotic garden landscapes, (see part three, Q. 7 in chapter 9, section 9.6.5-iii; images no. 3.R.1 - 3.R.10 in figure 9-9) were compared with the two profession groups (art or nature and non-art or nature professions) of participants from Medina and Tucson. A Mann-Whitney test performed on the means of the two professional groups showed that Madanies and Tucsonans are highly significantly different in their preference ratings of exotic garden landscapes ($p < 0.001$). The same test used across the two professional groups showed that Tucsonans are not significantly different in their responses ($p = 0.481$); neither are Madanies, ($p = 0.190$). Tucsonans and Madanies in the art or nature professional group are highly significantly

Figure: 10.13, Effect of formal education on preference rating of exotic garden landscapes. (Error bars represent 1 standard deviation).

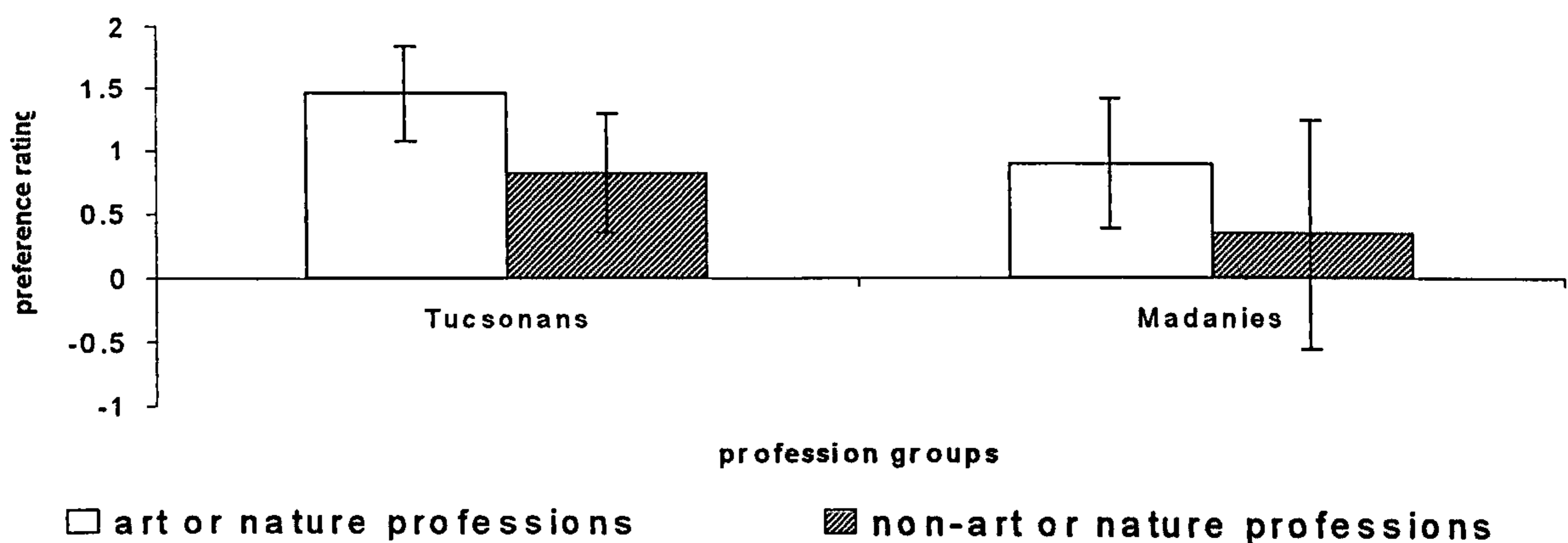


different ($p < 0.001$), likewise the non-art or nature professional group, ($p < 0.001$). Figure (10.13) shows perception ratings of Madanies and Tucsonans within each profession group. Tucsonans in art or nature professions group are the least in favour to exotic garden landscapes (lower value of means goes to -1.6).

10.2.6. Preference rating for desert garden landscapes.

The means of preference ratings for desert garden landscapes, (see part three of the assessment, Q. 7 in chapter 9, section 9.6.5-iii; images no. 3.L.1 - 3.L.10 in figure 9-9) were compared with the two profession groups (art or nature and non-art or nature professions) of participants from Medina and Tucson. A Mann-Whitney test performed on the means of the two professional groups showed that Madanies and Tucsonans are significantly different in their preference ratings of desert garden landscapes ($p = 0.01$). The running of the test across the two professional groups showed that Tucsonans are significantly different in their responses ($p = 0.015$). Madanies, however, demonstrated no significant difference in their preference ratings of desert garden landscapes ($p = 0.247$). Tucsonans and Madanies in art or nature profession group are significantly different ($p = 0.011$), but not significantly different among non-art or nature profession group ($p = 0.436$). Figure (10.14) shows preference ratings of Madanies and Tucsonans within each professional group. The chart show that most responses are in favour to desert garden landscapes.

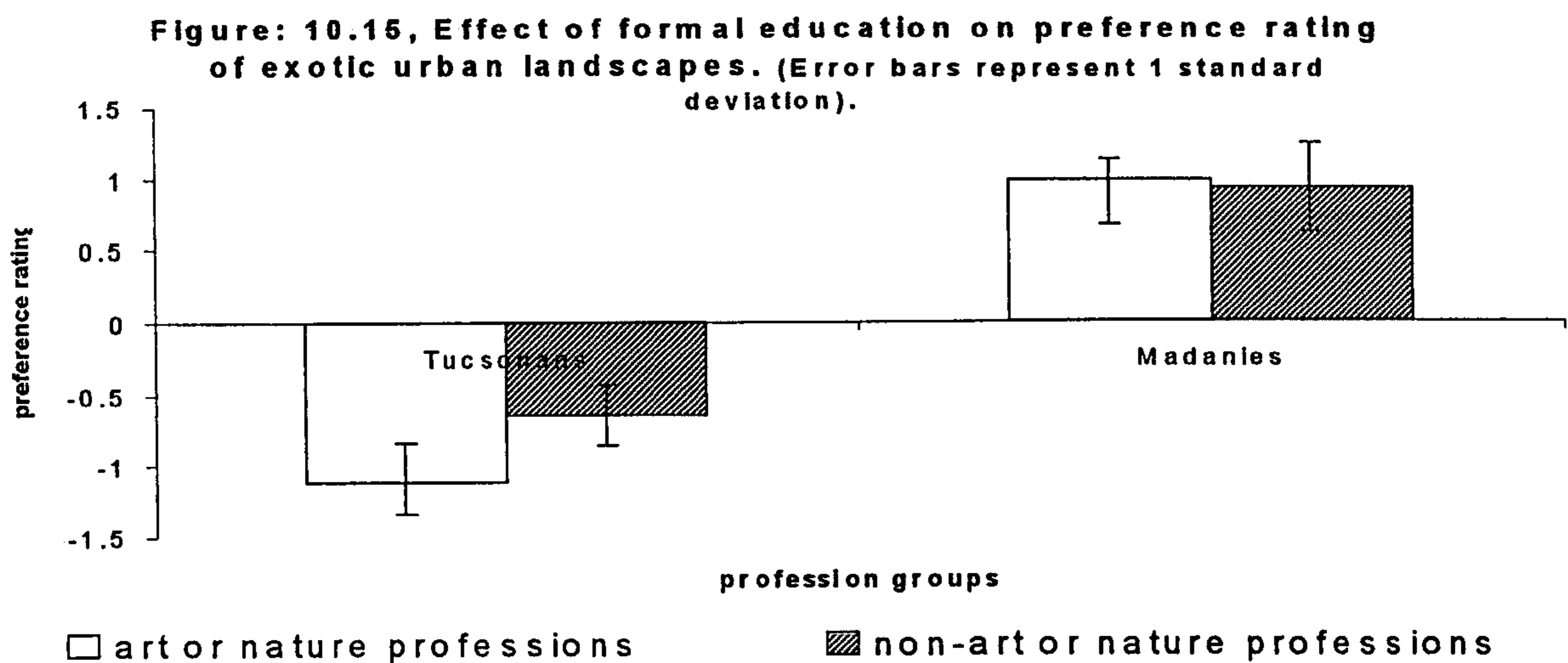
Figure: 10.14, Effect of formal education on preference rating of native garden landscapes. (Error bars represent 1 standard deviation).



10.2.7. Preference rating for exotic urban landscapes.

The means of preference ratings for exotic urban landscapes, (see part three in the assessment, Q. 7 in chapter 9, section 9.6.5-iii; images no. 4.R.1 - 4.R.10 see figure 9.10) were compared with the two profession groups (art or nature and non-art or nature professions) of participants from Medina and Tucson. A Mann-Whitney test performed on the means of the two professional groups showed

that Madanies and Tucsonans are highly significantly different in their preference ratings of exotic garden landscapes ($p < 0.001$). The use of the same test across the two professional groups showed that Tucsonans are highly significantly different in their responses ($p = 0.002$). Madanies, on the other hand demonstrated no significant difference among the two profession groups in preference ratings of exotic urban landscapes ($p = 0.579$). Tucsonans and Madanies in art or nature professional groups are highly significantly different ($p < 0.001$), and also significantly different among non-art or nature profession group ($p < 0.001$). Figure (10.15) shows preference ratings of Madanies and Tucsonans within each profession group. Tucsonans and Madanies respond very differently in this particular landscape assessment. It is apparent that Tucsonans are not in favour of exotic urban landscapes, but differ in the level of preference according to profession, Madanies had equally high acceptance of exotic urban landscape.

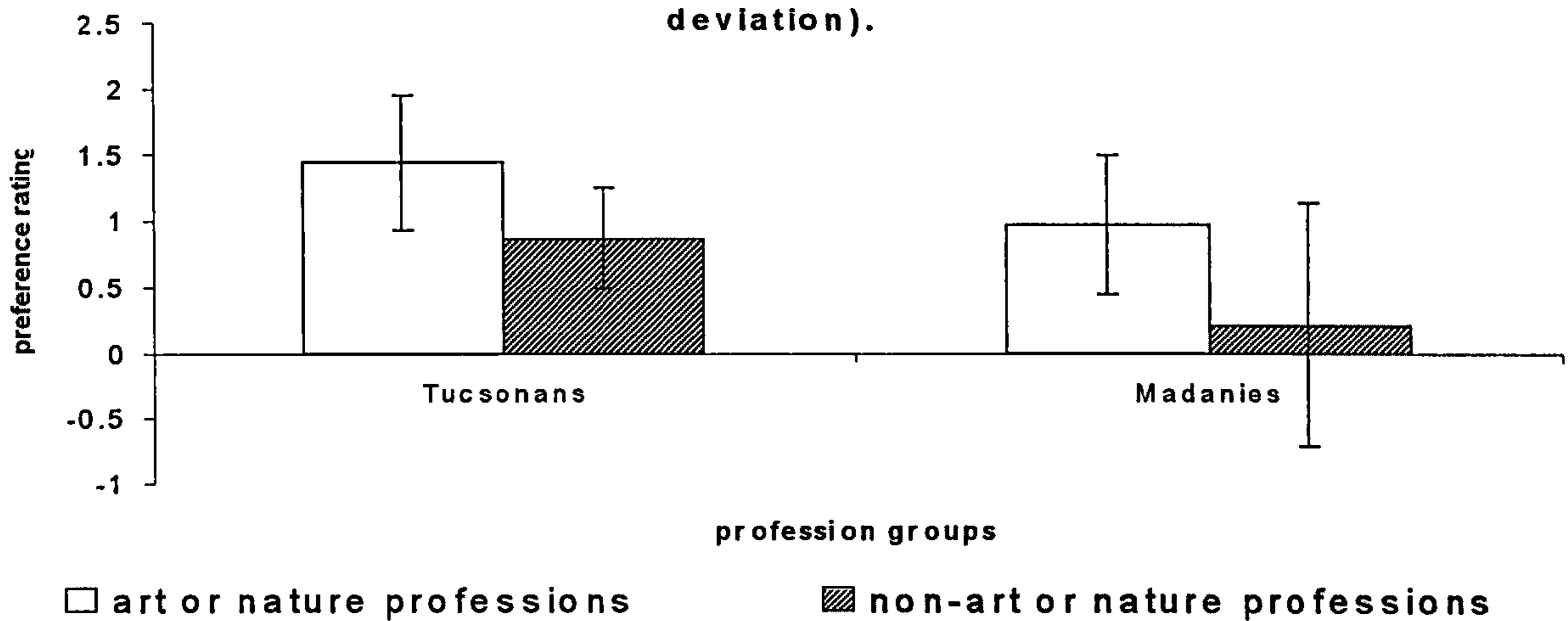


10.2.8. Preference rating for desert urban landscapes.

The means of preference ratings for desert urban landscapes, (see part three of the assessment, Q. 7 in chapter 9; images no. 4.L.1 - 4.L.10, see figure 9-10) were compared with the two profession groups (art or nature and non-art or nature professions) of participants from Medina and Tucson. A Mann-Whitney test performed on the means of the two professional groups showed that Madanies and Tucsonans are highly significantly different in their preference ratings of native urban landscapes ($p = 0.008$). The performance of the test across the two professional groups showed that Tucsonans are significantly different in their responses ($p = 0.023$). Madanies, however demonstrated no significant difference ($p = 0.089$). Tucsonans and Madanies in art or nature professional groups are significantly different ($p = 0.029$), however, they were not significantly different in the non-art or nature profession group ($p < 0.247$). Figure (10.16) shows preference ratings of Madanies and Tucsonans within each professional groups. There is a general agreement between Tucsonans and Madanies in art or nature professional groups, and contrast among non-art

or nature groups. Although the two groups, Madanies and Tucsonans, to some extent, differ in their level of acceptance of desert native landscapes in urban areas, they showed no particular dislike toward desert environments.

Figure: 10.16, Effect of formal education on preference rating of native urban landscapes. (Error bars represent 1 standard deviation).



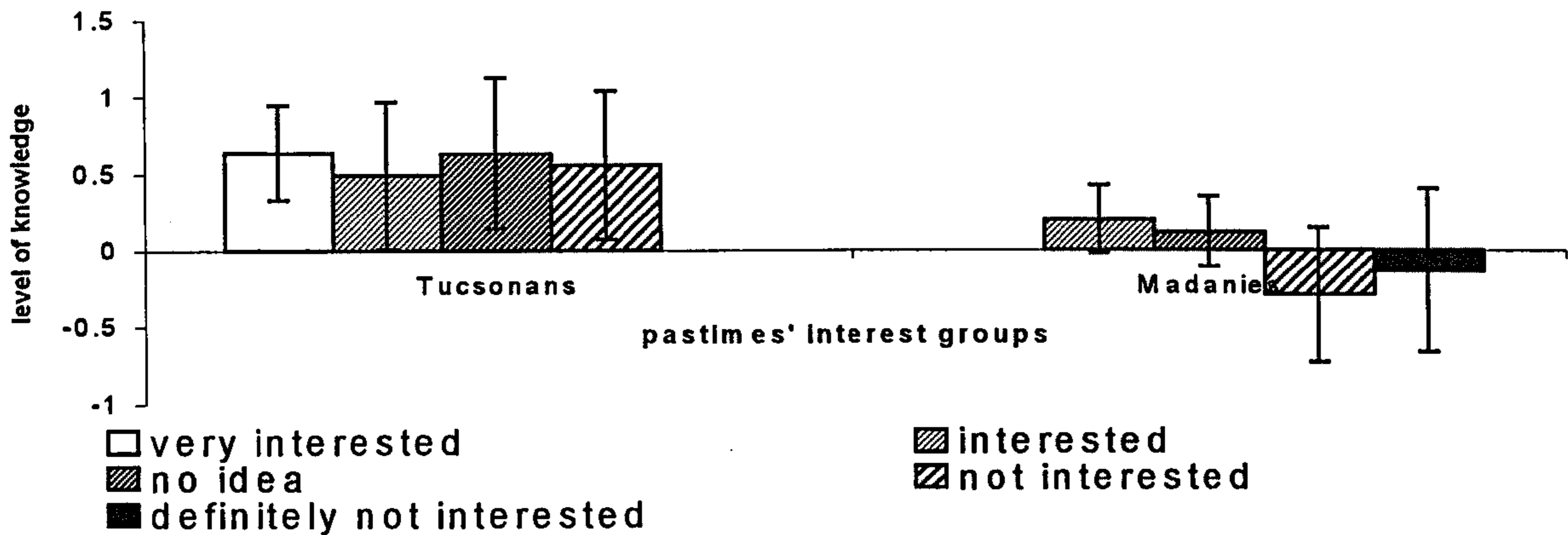
10.3. The effect of knowledge of desert landscape gained by in-formal education, (interest in pastimes related to desert environments) on participants' knowledge, perception, and preference of exotic and native desert landscapes.

10.3.1. Knowledge of desert natural environments.

For the purpose of this study, participants' level of interest in pastimes related to desert environments, expressed as means of rating scores, were divided into five groups: i) very interested group (Madianies $n=0$ and Tucsonans $n=50$), ii) interested group (Madianies $n=17$ and Tucsonans $n=40$), iii) no idea group (Madianies $n=98$ and Tucsonans $n=52$), iv) not interested group (Madianies $n=45$ and Tucsonans $n=9$), v) definitely not interested group (Madianies $n=30$ and Tucsonans $n=0$). The means of responses toward the 10 images (native and exotic plants, part one of the assessment Q. 5, see chapter 9, section 9.6.5-iii, images; 1.1.R-1.5.R and 1.1.L-1.5.L, see figure 9.7) representing participants' levels of knowledge of desert environments (very good, good, neither good nor poor, poor, very poor level of knowledge), were compared with the five previously mentioned categories of interest in pastimes related to desert environments of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the five categories showed that Madanies and Tucsonans are highly significantly different in term of ability to distinguish between native and exotic desert environments ($p < 0.001$). A Kruskal-Wallis test performed across the five categories showed that Tucsonans are not significantly different in their level of knowledge of desert environments ($p = 0.873$). Madanies in contrast demonstrated a highly significant difference among the five pastimes' interest groups ($p = 0.005$). Tucsonans and Madanies in the 'interested' category are significantly different ($p = 0.043$),

likewise in the 'not interested' category ($p=0.005$). Figure (10.17) shows levels of knowledge of Tucsonans and Madanies within each pastime's level of interest categories. It shows that Tucsonans are equally knowledgeable of desert environments regardless of their level of interest in pastimes related to desert environments. In comparison, Madanies knowledge is more clearly related to the pastimes' category they are in, i.e. the more interest they have of pastimes related to desert environments the more knowledge they are of desert environments.

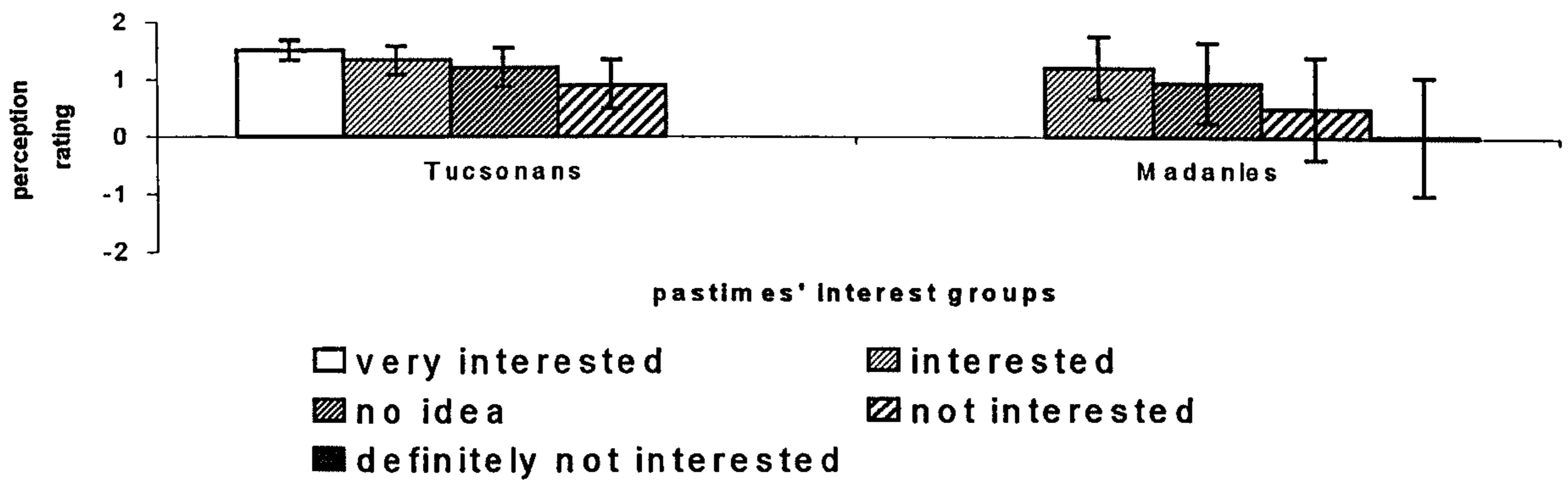
Figure: 10.17, Effect of knowledge gained by informal education (pastimes related to desert landscape) on participants' knowledge of desert environments.



10.3.2. Perception of positive statements associated with desert landscapes.

The means of perception ratings for positive statements, (part two of the assessment Q. 6, in chapter 9, section 9.6.5-iii), associated with five desert images (images no. 2.1-2.5 in figure 9.8) were compared with the five major categories of interest in pastimes related to desert environments of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the five categories showed that Madanies and Tucsonans are not significantly different in term of perception of positive responses associated with desert landscapes ($p=0.160$). A Kruskal-Wallis test performed across the five categories showed that Tucsonans are not significantly different in their perception of positive response associated with desert landscapes ($p=0.101$). The same is also true of Madanies ($p=0.113$). Tucsonans and Madanies in the category 'interested' are not significantly different ($p=0.690$), nor in the 'not interested' category ($p=0.548$). Figure (10.18) demonstrates that interest in pastimes related to desert environments does not have significant effect on Tucsonans responses to positive perceptions associated to desert landscapes. It confirms also that participants from both cities generally support positive perception associated with desert landscapes.

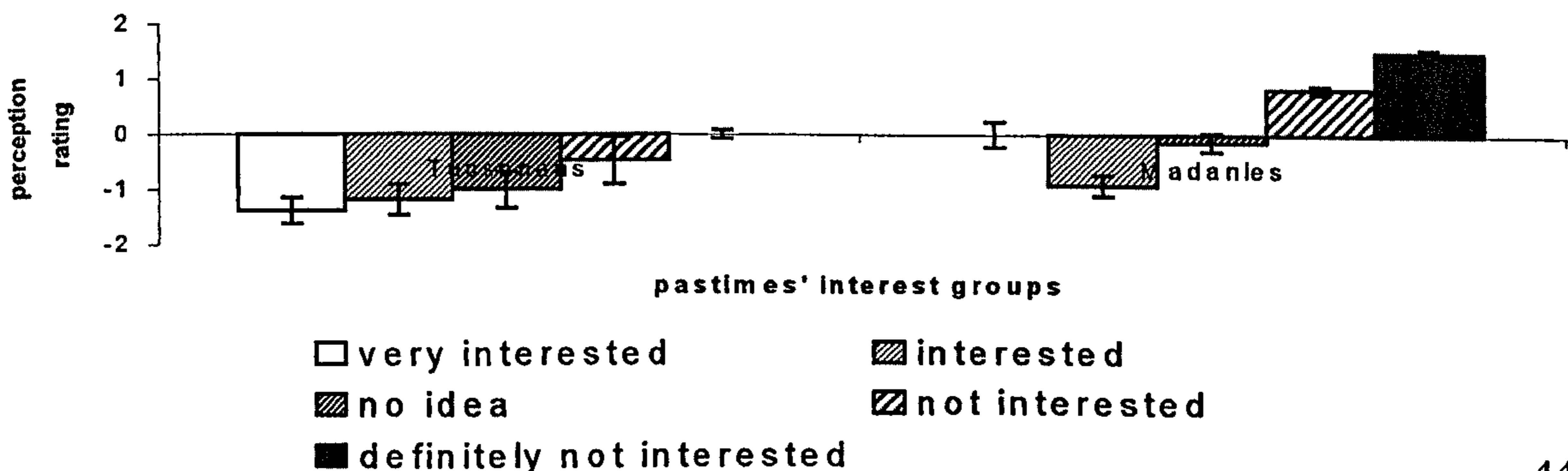
Figure: 10.18, Effect of knowledge gained by informal education (pastimes related to desert landscape) on participants' perception of positive response associated with desert landscapes.



10.3.3. Perception of negative statements associated with desert landscapes.

The means of perception ratings for negative statements, (part two of the assessment Q. 6, in chapter 9, section 9.6.5-iii), associated with four desert images (images no. 2.6-2.9 in figure 9.8) were compared with the five major categories of interest in pastimes related to desert environments of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the five categories showed that Madanies and Tucsonans are highly significantly different in term of perception of negative responses associated with desert landscapes ($p < 0.001$). A Kruskal-Wallis test performed across the five categories showed that Tucsonans are significantly different in their perception ratings ($p = 0.041$). Madanies also demonstrated highly significant differences ($p = 0.003$). Tucsonans and Madanies in the category 'interested' are not significantly different ($p = 0.343$), however they are significantly different in the category 'not interested' ($p = 0.029$). Figure (10.19) showed that Tucsonans share a general rejection of negative perception associated with desert landscapes. Madanies who also reject this perception are drawn from the 'interested' category and 'no idea' group only, while the other groups support the negative perceptions.

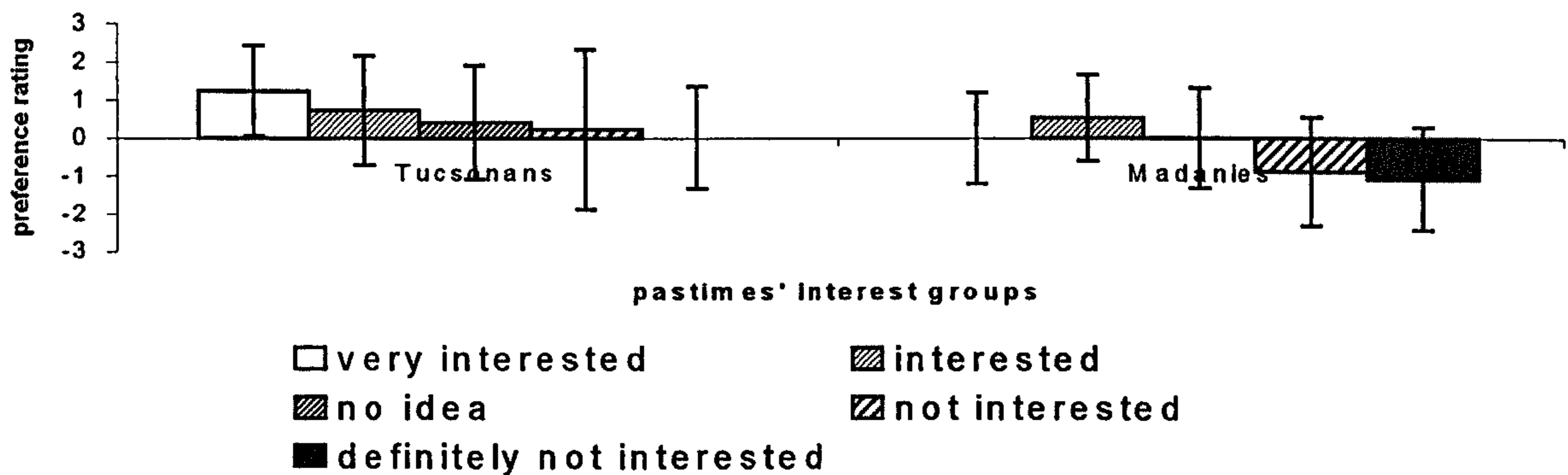
Figure: 10.19, Effect of knowledge gained by informal education (pastimes related to desert landscape) on participants' perception of negative response associated with desert landscapes.



10.3.4. Perception of response to 'exotic' landscape.

The scores of perception ratings for response, (see part two in the assessment, Q. 6, in chapter 9, section 9.6.5-iii), to exotic landscape (images no. 2.10, figure 9-8) were compared with the five major categories of interest in pastimes related to desert environments of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the five categories showed that Madanies and Tucsonans are highly significantly different in term of perception of response, (alien), associated with an 'exotic' landscape ($p < 0.001$). A Kruskal-Wallis test performed across the five categories showed that Tucsonans are not significantly different in their perception ratings ($p = 0.3$). In contrast, Madanies demonstrated a highly significant difference ($p < 0.001$). Tucsonans and Madanies in the category 'interested' are not significantly different ($p = 0.101$), but the 'not interested' category is significantly different ($p = 0.029$). Figure (10.20) show that there is sharp variation between 'interested' and 'not interested' categories in both groups.

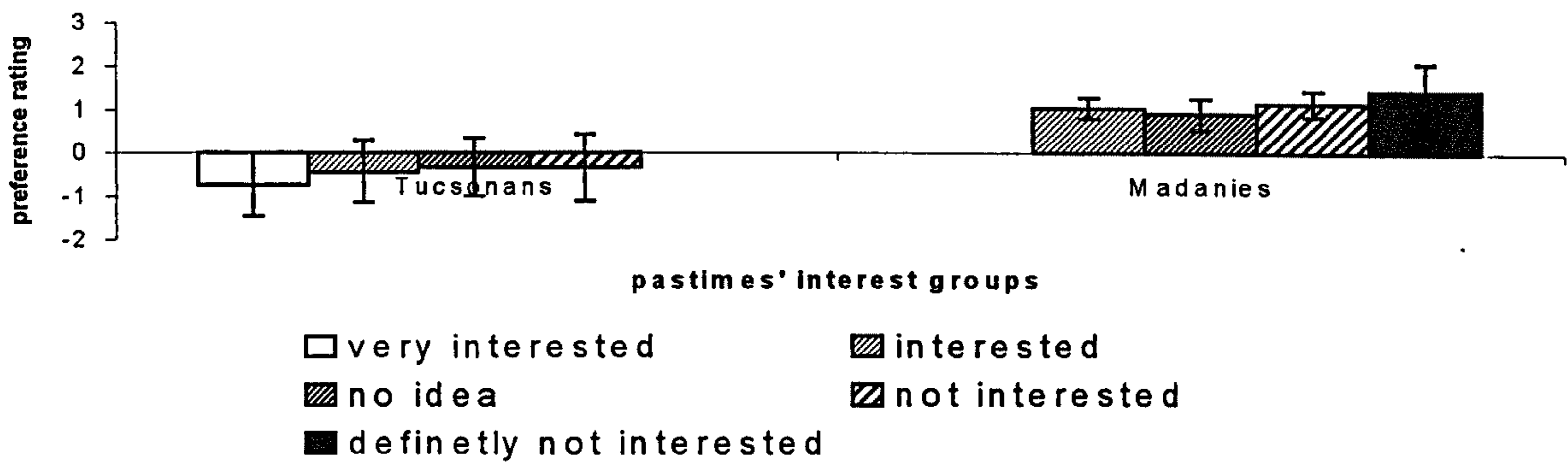
Figure: 10.20, Effect of knowledge gained by informal education (pastimes related to desert landscape) on participants' perception of response to 'exotic' landscape. (Error bar represent 1 standard deviation).



10.3.5. Preference rating for exotic garden landscapes.

The means of preference ratings for exotic garden landscapes, (see part three, Q. 7 in chapter 9, section 9.6.5-iii; images no. 3.R.1 - 3.R.10 in figure 9-9) were compared with the five major categories of interest in pastimes related to desert environments of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the five categories showed that Madanies and Tucsonans are highly significantly different in their preference ratings of exotic garden landscapes ($p < 0.001$). A Kruskal-Wallis test performed across the five categories showed that Tucsonans are not significantly different in their preference ratings ($p = 0.555$). This was also true of Madanies ($p < 0.054$). Tucsonans and Madanies in the 'interested' group are highly significantly different ($p < 0.001$), likewise for the 'not interested' group ($p < 0.001$). Figure (10.21) shows that Medina are equally favourable to exotic garden landscapes, while Tucsonans are rather negative toward these landscapes.

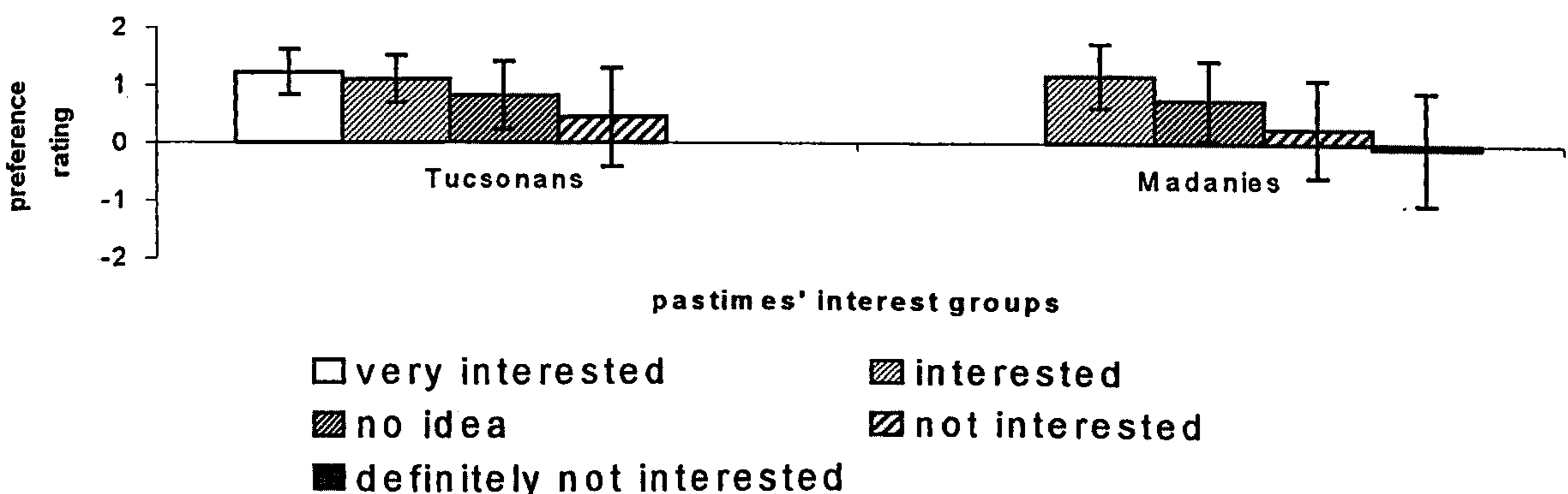
Figure: 10.21, Effect of knowledge gained by informal education (pastimes related to desert landscape) on participants' preference rating of exotic garden landscapes. (Error bar represent 1 standard deviation).



10.3.6. Preference rating for desert garden landscapes.

The means of preference ratings for desert garden landscapes, (see part three of the assessment, Q. 7 in chapter 9, section 9.6.5-iii; images no. 3.L.1 - 3.L.10 in figure 9-9) were compared with the five major categories of interest in pastimes related to desert environments of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the five categories showed that Madanies and Tucsonans are highly significantly different in their preference ratings of desert garden landscapes ($p= 0.004$). A Kruskal-Wallis test performed across the five categories showed that Tucsonans are not significantly different in their preference ratings ($p= 0.077$). Madanies, however, demonstrated a significant difference ($p= 0.011$). Tucsonans and Madanies in the 'interested' group are not significantly different ($p= 0.631$), nor was the 'not interested' group significant ($p= 0.529$). Figure (10.22) shows relative agreement among the Tucsonans, with a gradual drop in scores toward not-interested in pastimes group. Madanies maintain a similar attitude with sharper variance between subgroups.

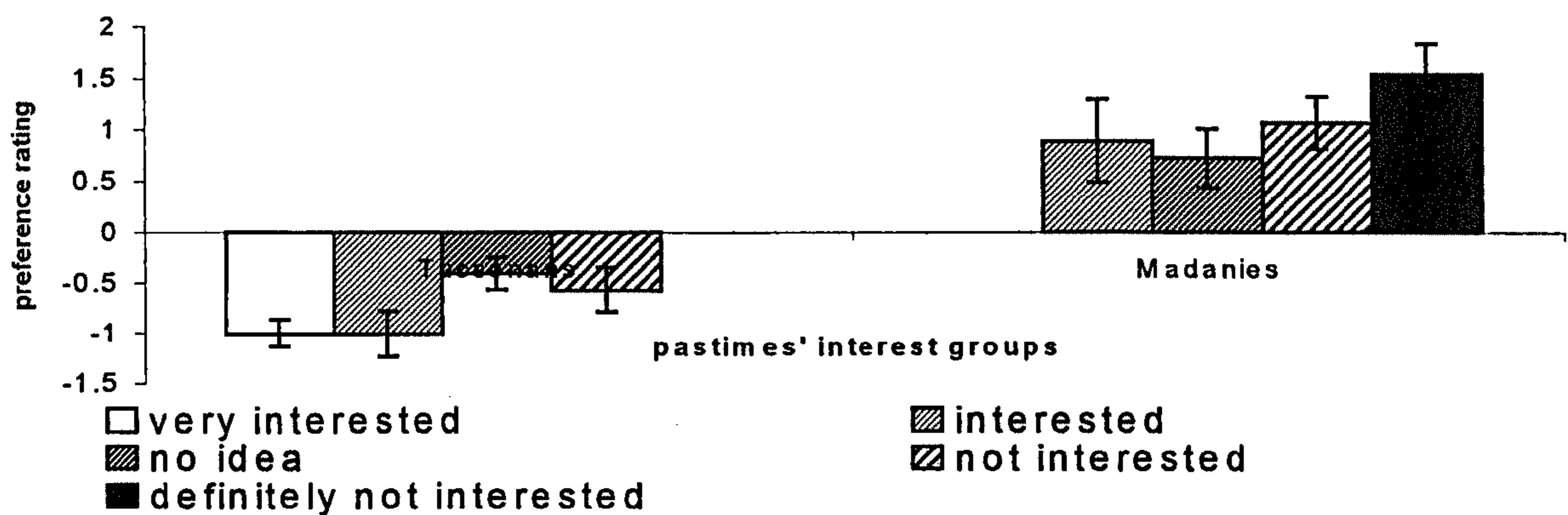
Figure: 10.22, Effect of knowledge gained by informal education (pastimes related to desert landscape) on participants' preference rating of desert garden landscapes. (Error bar represent 1 standard deviation).



10.3.7. Preference rating for exotic urban landscapes.

The means of preference ratings for exotic urban landscapes, (see part three in the assessment, Q. 7 in chapter 9, section 9.6.5-iii; images no. 4.R.1 - 4.R.10 see figure 9.10) were compared with the five major categories of interest in pastimes related to desert environments of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the five categories showed that Madanies and Tucsonans are highly significantly different in their preference ratings of exotic urban landscapes ($p < 0.001$). A Kruskal-Wallis test performed across the five categories showed that Tucsonans are highly significantly different in their preference ratings ($p < 0.001$), Madanies likewise ($p < 0.001$). Tucsonans and Madanies in the category 'interested' are highly significantly different ($p < 0.001$), likewise the 'not interested group' ($p < 0.001$). Figure (10.23) shows a sharp contrast between the two major groups, Madanies strongly prefer exotic urban, whilst Tucsonans do not.

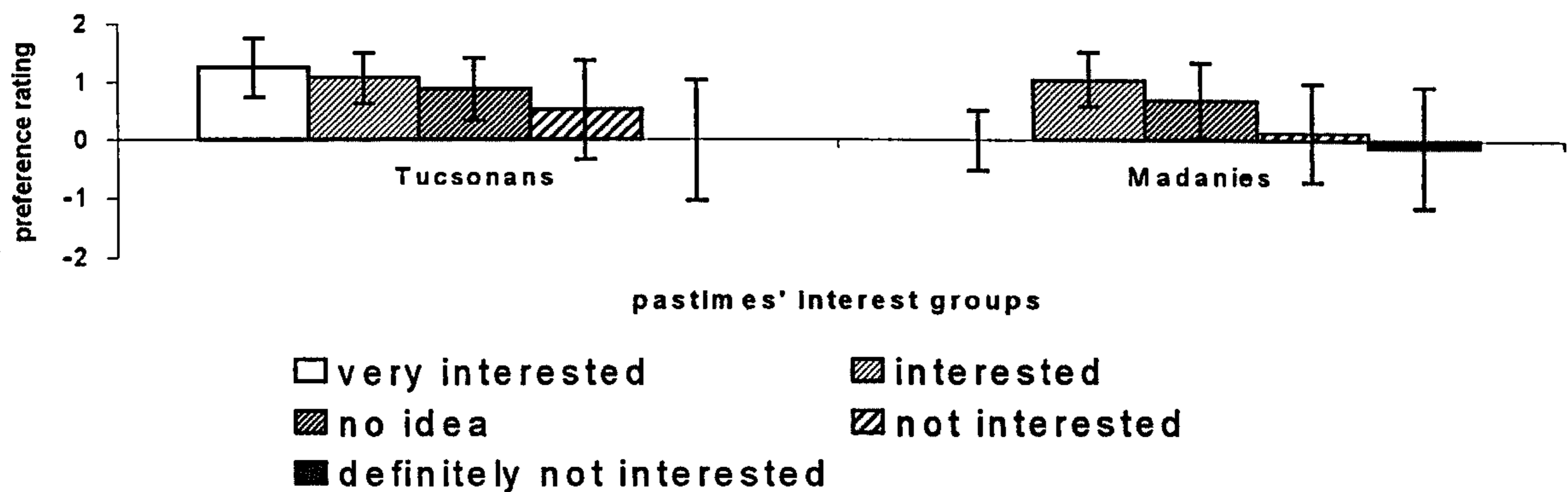
Figure: 10.23, Effect of knowledge gained by informal education (pastimes related to desert landscape) on participants' preference rating of desert garden landscapes. (Error bar represent 1 standard deviation).



10.3.8. Preference rating for desert urban landscapes.

The means of preference ratings for desert urban landscapes, (see part three of the assessment, Q. 7 in chapter 9; images no. 4.L.1 - 4.L.10, see figure 9-10) were compared with the five major categories of interest in pastimes related to desert environments of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the five categories showed that Madanies and Tucsonans are highly significantly different in their preference ratings of desert urban landscapes ($p = 0.004$). A Kruskal-Wallis test performed across the five categories showed that Tucsonans are not significantly different in their preference ratings ($p = 0.076$). Madanies, however, demonstrated a significant difference ($p = 0.018$). Tucsonans and Madanies in the category 'interested' are not significantly different ($p = 0.912$), and were not significantly different in terms of the 'not interested' group ($p = 0.247$). Figure (10.24) show a relative parallel attitude between Tucsonans and Madanies in preference rating of desert urban landscapes.

Figure: 10. 24, Effect of knowledge gained by informal education (pastimes related to desert landscape) on participants' preference rating of desert urban landscapes. (Error bar represent 1 standard deviation).



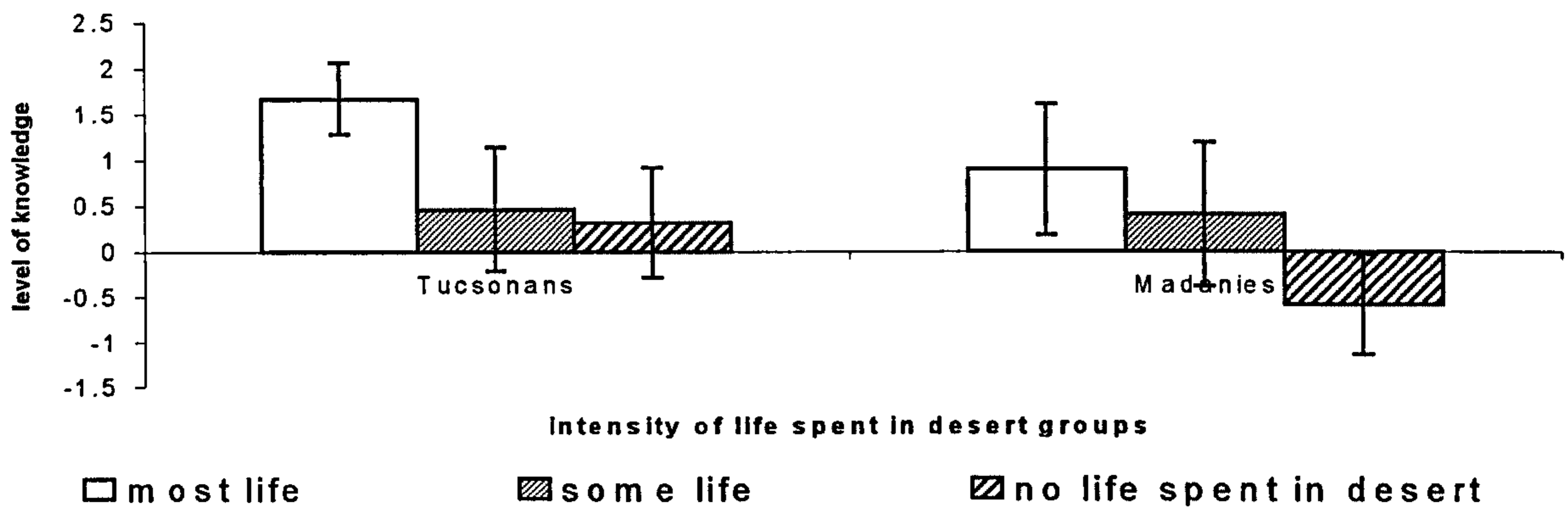
10.4. The effect of familiarity with desert landscape gained by life spent in desert environments, on participants' knowledge, perception, and preference for desert landscapes.

10.4.1. Knowledge of desert natural environments.

For the purpose of this study, participants were categorised on the basis of duration of their lives spent in desert environments to create the following groups: i) most life-spent-in-desert environments (Madanies n=52 and Tucsonans n=74), ii) some life-spent-in-desert environment (Madanies n=126 and Tucsonans n=40), iii) no life-spent-in-desert environments (Madanie n=15 and Tucsonans n=27), ii). The means of responses toward the 10 images (native and exotic plants, part one of the assessment Q. 5, see chapter 9, section 9.6.5-iii, images; 1.1.R-1.5.R and 1.1.L-1.5.L, see figure 9.7) representing participants' levels of knowledge of desert environments (very good, good, neither good nor poor, poor, very poor level of knowledge), were compared with the three major categories of life-spent-in-desert environments of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the three groups showed that Madanies and Tucsonans are highly significantly different in term of ability to distinguish between native and exotic desert environments ($p < 0.001$). A Kruskal-Wallis test performed across the three groups showed that Tucsonans across are highly significantly different in their level of knowledge of desert environments ($p = 0.005$). Madanies did likewise ($p = 0.002$). Tucsonans and Madanies in the 'most life-spent-in-desert' group are highly significantly different ($p = 0.002$), and significantly different in the 'no-life-spent-in-desert environment' group ($p = 0.01$). Figure (10.25) shows levels of knowledge of Tucsonans and Madanies within each life-spent-in-desert groups. It shows a conclusive correlation between familiarity gained by different intensities of life spent in desert landscapes and knowledge about desert environments, i.e. the more life spent in desert the

higher the scores, indicating better ability to distinguish between native and exotic environments in both Madanies and Tucsonans. It also shows Madanies have lower capacity to do this on average than Tucsonans.

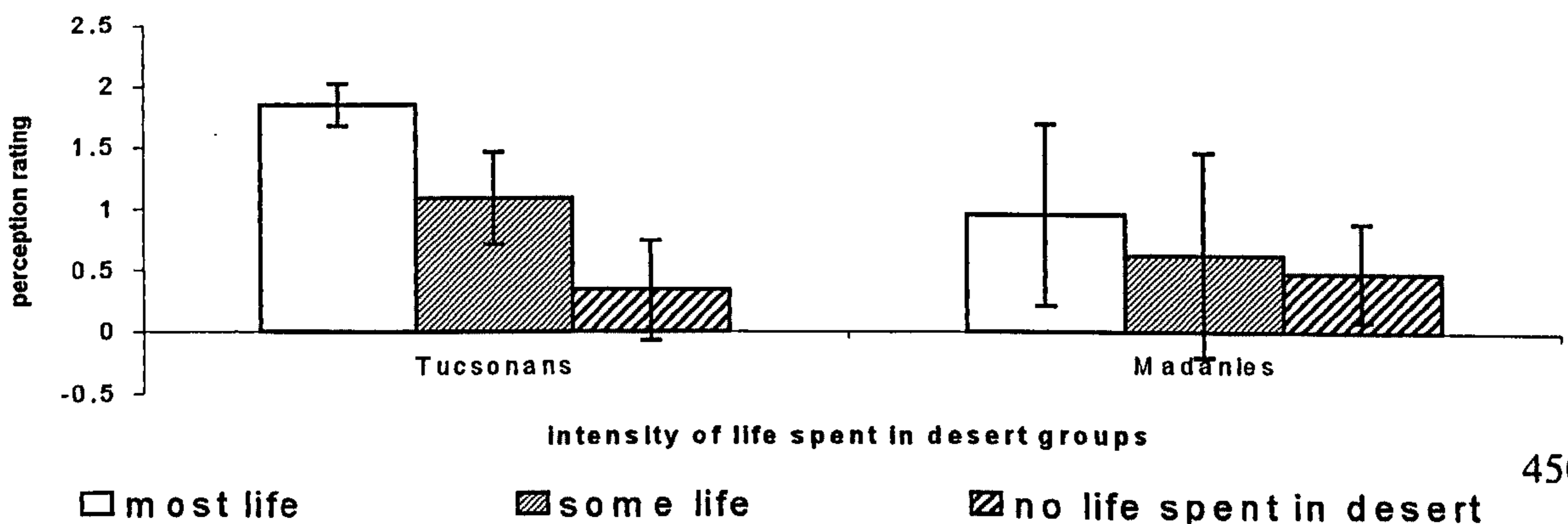
Figure: 10.25, Effect of familiarity gained by life spent in desert landscapes on knowledge of desert environments. (Error bars represent 1 standard deviation).



10.4.2. Perception of positive statements associated with desert landscapes.

The means of perception ratings for positive statements, (part two of the assessment Q. 6, in chapter 9, section 9.6.5-iii), associated with five desert images (images no. 2.1-2.5 in figure 9.8) were compared with the three major categories of life-spent-in-desert environments of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the three groups showed that Madanies and Tucsonans are significantly different in term of perception of positive responses associated with desert landscapes ($p= 0.013$). A Kruskal-Wallis test performed across the three groups showed that Tucsonans are highly significantly different in their perception of positive response associated with desert landscapes ($p= 0.003$). Madanies in contrast demonstrated no significant difference ($p= 0.689$). Tucsonans and Madanies in the 'most life-spent-in-desert environment' group are significantly different ($p= 0.047$), but not significantly different in the 'no life-spent-in-desert environment' group ($p= 0.690$). Figure (10.26) demonstrated a conclusive correlation between length of life spent in desert and perception of positive response associated with desert landscapes among both Madanies and Tucsonans.

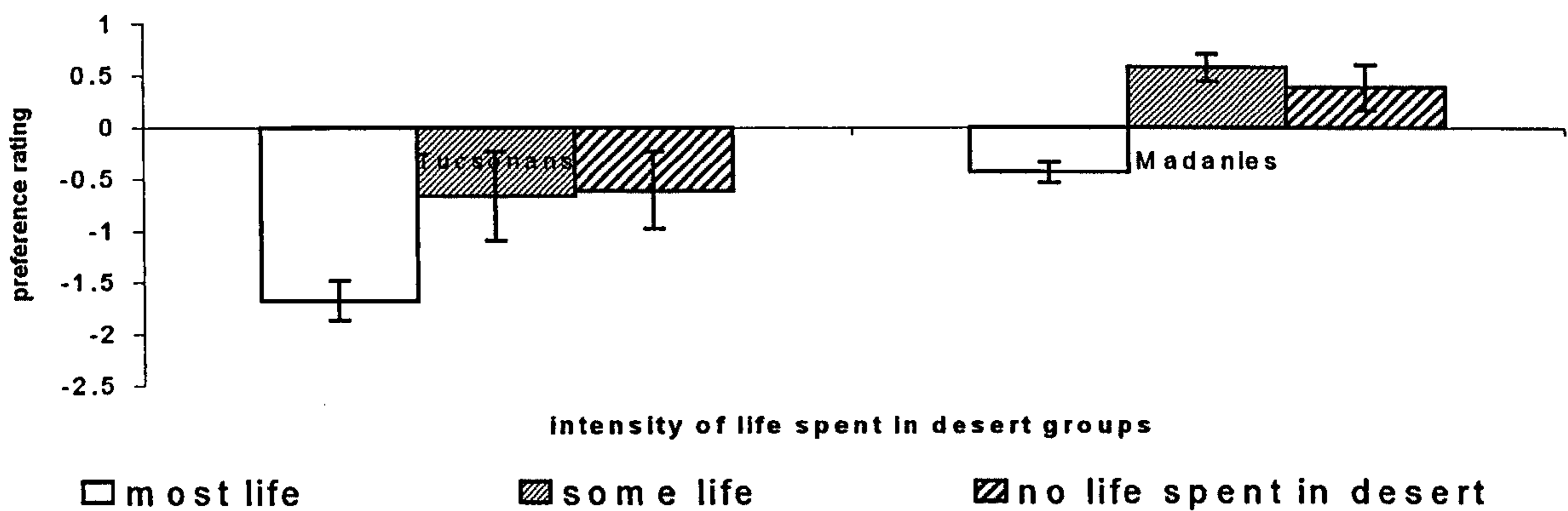
figure: 10.26, Effect of familiarity gained by life spent in desert landscape on perception of positive statements associated with desert landscapes. (Error bar represent 1 standard deviation).



10.4.3. Perception of negative statements associated with desert landscapes.

The means of perception ratings for negative statements, (part two of the assessment Q. 6, in chapter 9, section 9.6.5-iii), associated with four desert images (images no. 2.6-2.9 in figure 9.8) were compared with the three major categories of life-spent-in-desert environments of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the three groups showed that Madanies and Tucsonans are highly significantly different in term of perception of negative responses associated with desert landscapes ($p= 0.001$). A Kruskal-Wallis test performed across the three groups showed that Tucsonans are highly significantly different in their perception of negative response associated with desert landscapes ($p= 0.024$). Madanies also demonstrated a significant difference ($p= 0.012$). Tucsonans and Madanies in the 'most life-spent-in-desert environment' groups are significantly different ($p= 0.029$), likewise 'no life-spent-in-desert environment' groups ($p= 0.029$). Figure (10.27) show a conclusive correlation between length of life spent in desert and perception of negative response associated with desert landscapes among Tucsonans, and to some extent with Madanies.

figure: 10.27, Effect of familiarity gained by life spent in desert landscape on perception of negative statements associated with desert landscapes. (Error bar represent 1 standard deviation).

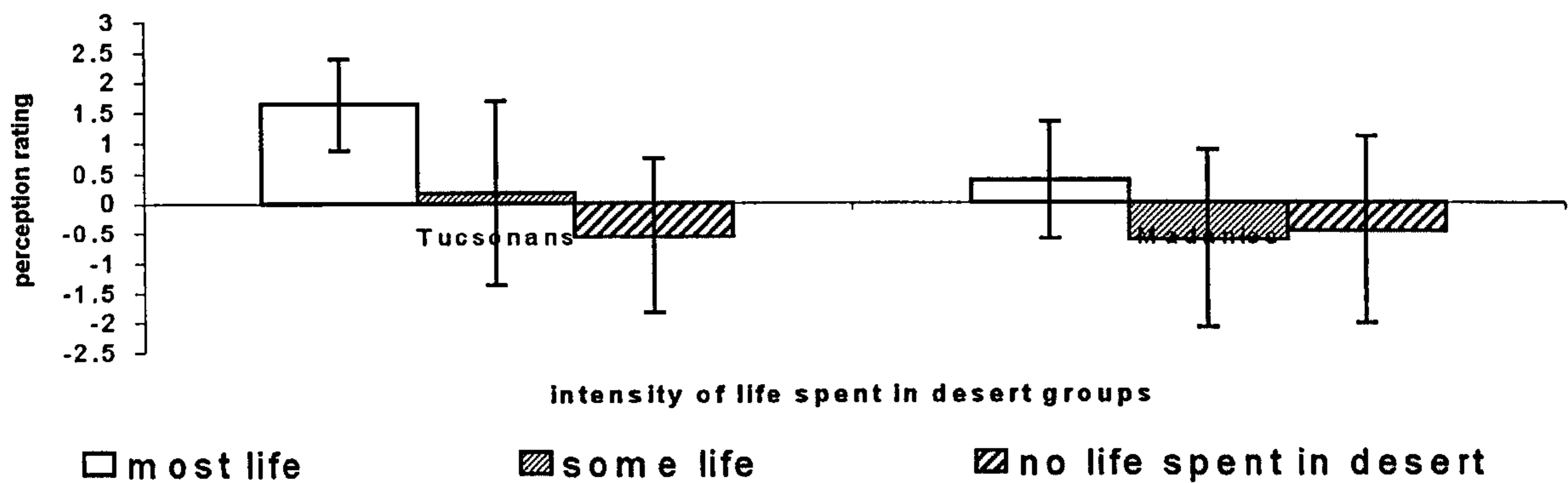


10.4.4. Perception of response to 'exotic' landscape.

The scores of perception ratings for response, (see part two in the assessment, Q. 6, in chapter 9, section 9.6.5-iii), to exotic landscape (images no. 2.10, figure 9-8) were compared with the three major categories of life-spent-in-desert environments of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the three groups showed that Madanies and Tucsonans are highly significantly different in term of perception of response, (alien), associated with an 'exotic' landscape ($p<0.001$). A Kruskal-Wallis test performed across the three groups showed that Tucsonans not significantly different in their perceptions ($p= 0.322$). Madanies in

contrast demonstrated a highly significant difference between the three ($p < 0.001$). Tucsonans and Madanies in the 'most life-spent-in-desert environment' group are not significantly different ($p = 0.101$), but were significantly different in the 'no life-spent-in-desert environment' groups ($p = 0.029$). Figure (10.28) demonstrates a conclusive correlation between intensity of life spent in desert and perception of a response, i.e. 'alien,' associated with desert landscapes for both Tucsonans and Madanies.

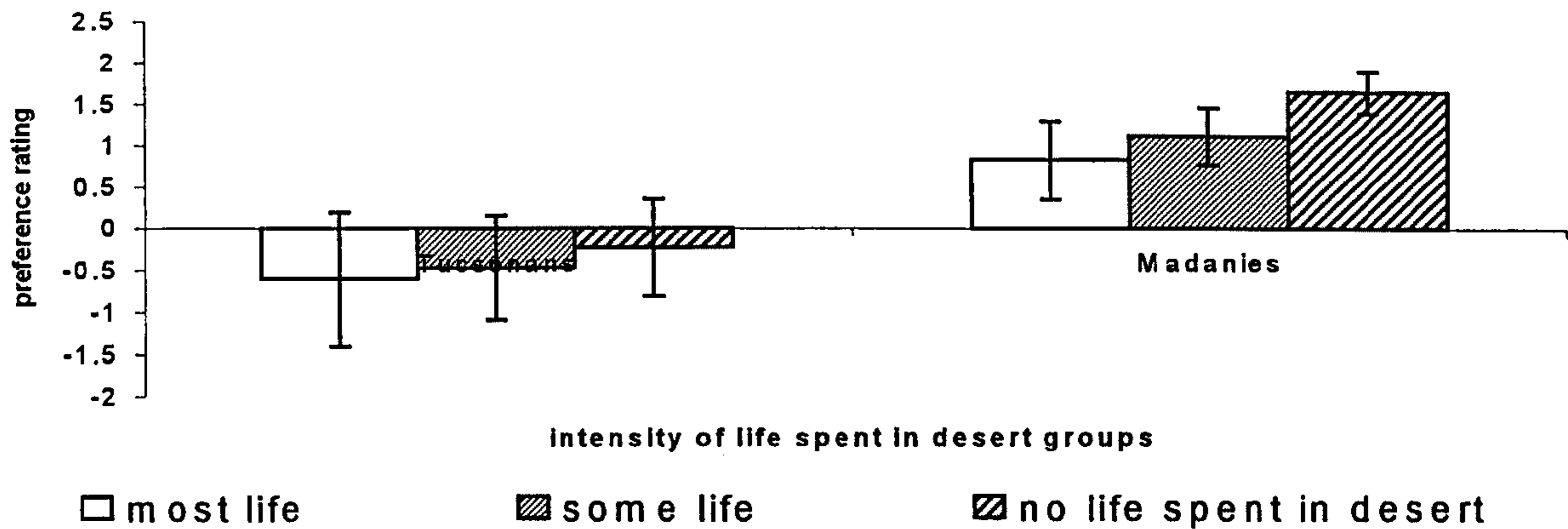
figure: 10.28, Effect of familiarity gained by life spent in desert landscape on perception of response, i.e. 'alien' landscapes, associated with exotic landscapes. (Error bar represent 1 standard deviation).



10.4.5. Preference rating for exotic garden landscapes.

The means of preference ratings for exotic garden landscapes, (see part three, Q. 7 in chapter 9, section 9.6.5-iii; images no. 3.R.1 - 3.R.10 in figure 9-9) were compared with the three major categories of life-spent-in-desert environments of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the three groups showed that Madanies and Tucsonans are highly significantly different in their preference ratings of exotic garden landscapes ($p < 0.001$). A Kruskal-Wallis test performed across the three groups showed that Tucsonans are not significantly different in their preference ratings ($p = 0.422$). Madanies in contrast demonstrated a highly significant difference among the three groups ($p < 0.001$). Tucsonans and Madanies in the 'most life-spent-in-desert environment' groups are highly significantly different ($p < 0.001$), likewise the 'no life-spent-in-desert environment' groups ($p < 0.001$). Figure (10.29) demonstrate a conclusive correlation between duration of life spent in desert and preference rating of exotic garden landscapes, i.e. the less life spent in desert environments, the higher the scores participants' rate for exotic landscapes. it also shows how familiarity does not prevent Madanies from preferring exotic gardens landscapes.

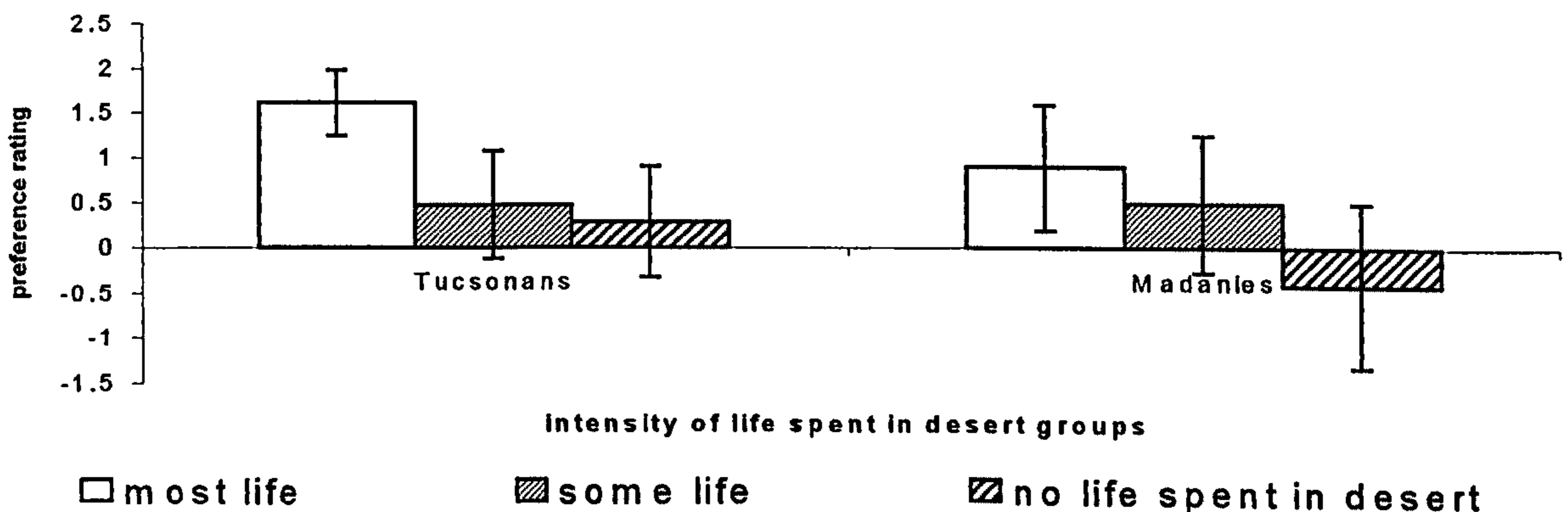
Figure: 10.29, Effect of familiarity gained by life spent in desert landscape on preference rating of exotic garden landscapes.
(Error bar represent 1 standard deviation).



10.4.6. Preference rating for desert garden landscapes.

The means of preference ratings for desert garden landscapes, (see part three of the assessment, Q. 7 in chapter 9, section 9.6.5-iii; images no. 3.L.1 - 3.L.10 in figure 9-9) were compared with the three major categories of life spent in desert environments of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the three groups showed that Madanies and Tucsonans are highly significantly different in their preference ratings of desert garden landscapes ($p < 0.001$). A Kruskal-Wallis test performed across the three groups showed that Tucsonans are highly significantly different in their preference ratings ($p < 0.001$). Madanies in contrast demonstrated a significant difference among the three groups ($p = 0.015$). Tucsonans and Madanies in the 'most life-spent-in-desert environment' groups are highly significantly different ($p = 0.005$), but not significantly different in the 'no-life-spent-in-desert environment' groups ($p = 0.089$). Figure (4.6) shows a conclusive correlation between duration of life spent in desert environments and preference of desert garden landscapes.

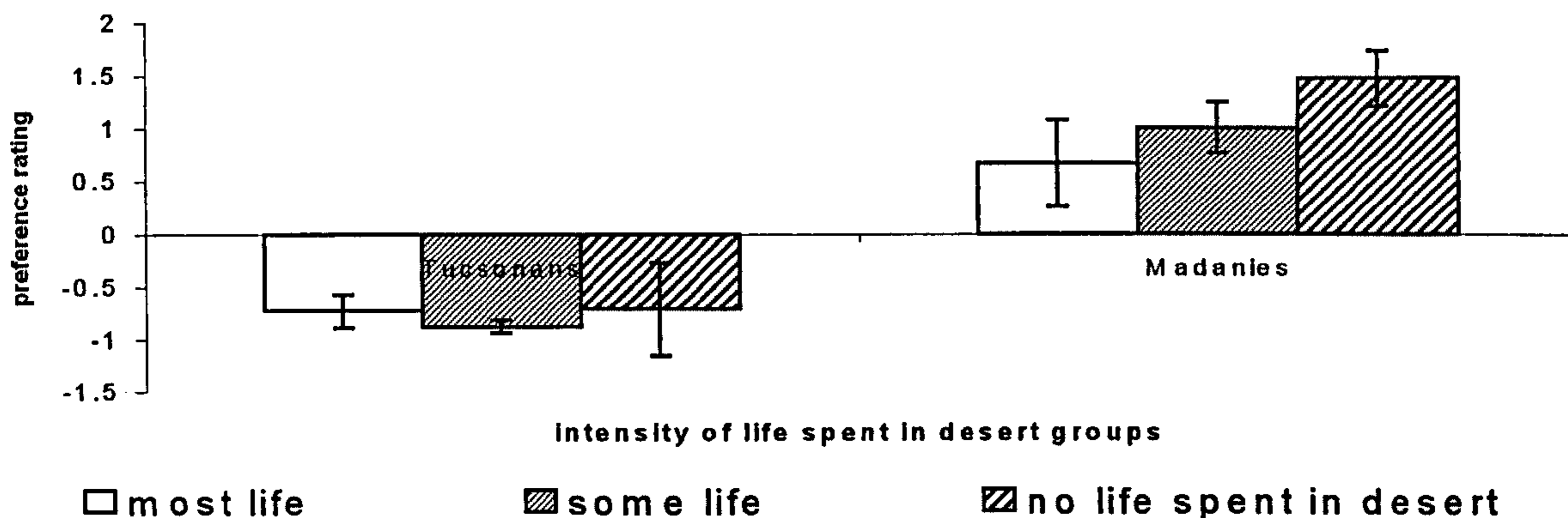
Figure: 10.30, Effect of familiarity gained by life spent in desert landscape on preference rating of native garden landscapes.
(Error bar represent 1 standard deviation).



10.4.7. Preference rating for exotic urban landscapes.

The means of preference ratings for exotic urban landscapes, (see part three in the assessment, Q. 7 in chapter 9, section 9.6.5-iii; images no. 4.R.1 - 4.R.10 see figure 9.10) were compared with the three major categories of life-spent-in-desert environments groups of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the three groups showed that Madanies and Tucsonans are highly significantly different in their preference ratings of exotic urban landscapes ($p < 0.001$). A Kruskal-Wallis test performed across the three groups showed that Tucsonans are significantly different in their preference ratings ($p = 0.054$). Madanies demonstrated a highly significant difference ($p < 0.001$). Tucsonans and Madanies in the 'most life-spent-in-desert environment' groups are highly significantly different ($p < 0.001$), as are the 'no life-spent-in-desert environments' groups ($p < 0.001$). Figure (10.31) show that although Tucsonans do not show a conclusive response to different periods of life spent in desert environments, as Madanies do, they show a general dislike toward exotic urban landscapes.

Figure: 10.31, Effect of familiarity gained by life spent in desert landscape on preference rating of exotic urban landscapes. (Error bar represent 1 standard deviation).

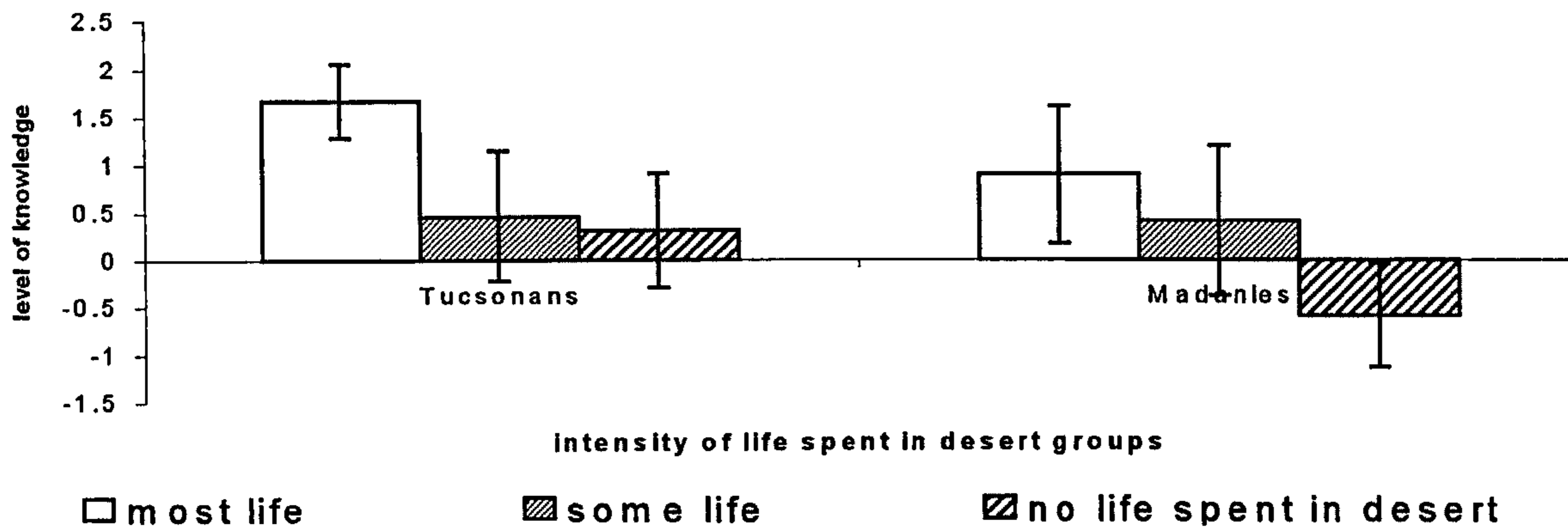


10.4.8. Preference rating for desert urban landscapes.

The means of preference ratings for desert urban landscapes, (see part three of the assessment, Q. 7 in chapter 9; images no. 4.L.1 - 4.L.10, see figure 9-10) were compared with the three major categories of life-spent-in-desert environments groups of both participants from Medina and Tucson. A Mann-Whitney test performed on the means of the three groups showed that Madanies and Tucsonans are highly significantly different in their preference ratings of desert urban landscapes ($p < 0.001$). A Kruskal-Wallis test performed across the three groups showed that Tucsonans are highly significantly different in their preference ratings ($p < 0.001$). Madanies demonstrated a highly significant difference ($p = 0.001$). Tucsonans and Madanies in the most life-spent-in-desert groups are highly significantly different ($p = 0.009$), as are the 'no life-spent-in-desert

environment' groups ($p= 0.002$). Figure (10.32) shows that Tucsonans and Madanies show a conclusive response to their different periods of times spent in desert environments. It shows also that Tucsonans are more positive toward urban desert environments than Madanies.

Figure: 10.32, Effect of familiarity gained by life spent in desert landscape on preference rating of desert urban landscapes.
(Error bar represent 1 standard deviation).





11 Discussion.

Attitudes towards designed landscapes in two desert cities: Medina, Saudi Arabia and Tucson, Arizona.

11. The Comparative Study, Discussion.

This study was initially designed to address seven factors; i) age, ii) life spent in desert environments, iii) place of residence in relation to desert landscapes, iv) actual level of knowledge of desert environments (assessed in the experiment), v) formal education (profession), and vi) informal education (level of interest in pastimes related to desert environments), vii) types of planting in private gardens. In a preliminary analysis of the data it became clear that place of residence in relation to desert landscapes did not show any trends for either Madanies or Tucsonans. Zube (1998), maintains that respondents in riparian landscape had identical positive perception toward desert landscape as desert residents. The other two factors which showed no particular pattern were; i) actual level of participant's knowledge of desert environments, and; ii) types of planting in private gardens. The remaining four factors were further investigated statistically in terms of their influence on participants perceptions and preferences.

The preliminary analysis of the data raised the possibility of bias in the results of the Tucsonan group. The most substantial reasons for this bias was unexpected at the time of the assessment. These reasons included the following:

1. Opposite to what was planned, the methodology of landscape assessment used in Medina is different from the one used in Tucson. In Medina, participants undertook the experiment on the basis of groups rather than individuals as was the case in Tucson. One of the disadvantages is that Madanies selected themselves after being invited to participate in the experiment, whereas Tucsonans were selected by the author. Among the many factors that may have contributed to the selection of Tucson's participants was the author's subliminal judgement, as to whether 'he/she doesn't look like they are willing to participate in the experiment,' to avoid the embarrassment of participant's refusal.
2. Another disadvantage is that most Tucson participants were met in desert-like recreational areas where people are expected to have greater interest in desert landscapes (see 9.6.5.i).
3. The experiment in Tucson was undertaken in spring time, a time in which desert plants bloom and are colourful and the weather is at its best. However, in Medina, participants gathered in a meeting room under more enclosed and controlled environment during the summer.

These methodological variables may have had an effect on the data and as a result the author proposes that findings of this comparative study should be interpreted with caution. This is particularly so for conclusions drawn from comparisons between the two cultures. On the other hand, the factor that helps balance this out is that more of the Medina sample were

university educated professionals, where as the Tucsonans were more socially and educationally diverse (figure 10.33).

Figure: 10.33, Education of participants.

	Madanies (n= 193)	Tucsonans (n= 151)
	%	%
Student	11.9	27.2
Bachelor's degree	53.4	25.8
Master's degree	9.8	16.6
Ph.D.	3.1	.7
Retired	1	5.3
No degree	20.7	24.5

11.1. The effect of age, (<25, 25-50, and >50 years old groups) on participants' knowledge, perception, and preference of exotic and native desert landscapes.

The factor 'age' seems to have a limited influence on participants' knowledge of desert environments. Although there appears to be substantial difference in the level of knowledge of desert environments between Madanies and Tucsonans, participants within each group do not show a predictable response to age, i.e. Tucsonans in the >50 years old age group showed a low level of knowledge compared with the <25 and 25-50 years old groups (see figure 10.1). This can be explained by the fact that most participants interviewed in desert-like parks were tourists, especially elderly people, who usually come from the north to spend the winter in the area. On the other hand, Madanies are generally far less knowledgeable of desert environments than Tucsonans especially in the <25 years old group. The most surprising part of the results is that elderly people of Medina, in contrast to the author's hypothesis, showed low level of knowledge of desert environments. There is, however, a possibility that this age group in Medina might have demonstrated rather more expected results if they had viewed plants in actual site rather than using images. Madanies of this age are anticipated to have struggled with the methodologies used especially in this case where this assessment was the first task participants undertook in the experiment. This suggests that using some preliminary images at the beginning of landscape visual assessments to familiarise participants with the task before proceeding with the actual experiment would be valuable. Overall, it can be concluded that age did not have a major influence on participants' knowledge of desert environments.

Tucsonans proved to be more positive toward positive responses than Madanies, however, the statistical analysis suggests that age has no substantial influence on participants' perception of positive semantic responses toward desert landscapes. In contrast, the results of participant's perception of negative semantic responses to desert landscapes show sharper variance between Madanies and Tucsonans and between subgroups of Madanies (see figure 10.3). Tucsonans show no clear trend in their perceptions. Elderly participants from Tucson are unexpectedly less negative toward negative perceptions of desert landscapes than might be expected of tourists from the North. Elderly participants of Medina are sharply different from those in the <25 years old group who clearly have very negative perceptions of desert landscapes. Comparing the results of both positive and negative responses toward desert landscapes, with perception of 'alien' addressed to exotic landscape give an indication that Madanies of different age groups are not as clear about the sense of 'exoticness' of an exotic landscape, as they are about the idea of positive and negative attitudes towards desert landscapes. The results showed also that participants across groups and subgroups are significantly different; Tucsonans saw exotic landscapes as more 'alien' than Madanies, with the exception of the Tucsonan elderly group. On the other hand, elderly participants from Medina are more favourable to the term 'alien' for exotic landscapes than Tucsonans in this age group (see figure 10.4). This leads to the conclusion that age *per se* does not have a conclusive effect on participant's perception of positive and negative attitudes toward desert landscapes.

Amongst Madanies, the older participants are the more favourable to desert landscapes and show least preference to exotic landscapes. Tucsonans on the other hand show no clear trend in their responses although in general they accept desert landscapes and reject exotic landscapes. Looking at the whole picture, differences between Madanies and Tucsonans are mostly between the Madanies subgroup. In all preference assessments, however, Tucsonan subgroups showed a lower level of differences (see figures 10.5, 6, 7, 8). This leads to the conclusion, that whilst age is not a substantial influence on Tucsonans' preferential judgements, it is for Madanies.

11.2. The effect of knowledge of desert landscape gained by formal education on participant's knowledge, perception, and preference rating for desert landscapes.

Knowledge of desert landscape gained by formal education (by being a member of a professional group) seems to have a conclusive impact on participants. This is in contrast to Purcell and Lamb's (1998) study which concluded that participant's recognition of the difference between structurally intact and altered vegetation forms had nothing to do with previous biological or botanical knowledge. As hypothesised, formally educated participants

from Medina and Tucson, in art or nature related professions are more knowledgeable of desert environments than those in non-art or nature professions (see figure 10.9). Over all Tucsonans demonstrated a higher level of knowledge of desert environments than Madanies. This is presumably due to Madanies being more familiar with their urban exotic landscape, depicted in images used in this study than Tucsonans, who during interviews demonstrated signs of ambiguity toward the images of Medina urban landscapes. Participants, as Purcell and Lamb (1998) indicated, learn to correlate between the presented scene and their location. Thus these reactions would then be biased by the knowledge they hold of the scene's original environment in which participants may have lived. Although this is unexpected given that Madanies have for most of their long history inhabited desert environments, living in lush green exotic landscapes of urban areas for the past 2-3 decades appears to have alienated them from desert landscapes.

It seems that Tucsonans and Madanies with art or nature background have a similar level of knowledge toward desert environments, however, they differed greatly from the non-art or nature professional group. Madanies educated in art or nature related professions, in contrast to Tucsonans, differed sharply from those with other educational backgrounds.

Formal education did not have a significant impact on participants' perception of positive statements associated with desert landscapes (see figure 10.10). Despite the general agreement among participants, there is a subtle variance in perception between the two profession groups of Tucsonans, with a sharper difference among the two Madanies professional groups. With the exception of Madany perception of positive statements associated with desert landscapes in non-art or nature professions, there appear to be a general consistency in response in both groups. While the two groups of professions responded, to some extent, consistently toward positive statements associated with desert landscapes, they responded significantly differently in response to negative statements associated with desert landscapes (see figure 10.11). There is a significant difference between city groups and professional subgroups. Madanies in professions not related to art or nature were less appreciative towards desert landscapes than other groups. Tucsonans and Madanies in art or nature related professions demonstrated a substantial recognition of the alien nature of exotic landscape, while others in professions not related to art or nature non- failed to recognise this in exotic landscape (see figure 10.12). This failure was most intense among Madanies who consider green exotic landscapes to be as familiar as local native landscape!

There is intense variation between Tucsonans and Madanies in term of landscape preference rating of exotic garden and urban landscapes in both professional groups (see figure 10.13 and 15). Knowledge gained by formal education does not have a substantial influence on Tucsonans and Madanies preference rating of exotic-garden landscapes, nor on Madanies' preference rating of all other landscapes. In contrast, Tucsonans showed a clear pattern in their preference rating of desert garden and urban landscapes (see figure 10.14 and 16), and exotic urban landscapes. It seems that there are universal cultural similarities that generate a relative agreement upon responses toward exotic garden landscapes. On the other hand, it is apparent that when Tucsonans in general gave negative response to exotic garden landscapes, Madanies gave a positive response. Both groups, Tucsonans and Madanies, showed more positive responses toward desert-garden landscape, although Tucsonans are more positive than Madanies. In addition, Madanies were less supportive to desert-urban landscapes in professions not related to art or nature. These responses might be reasoned to Tucsonans being more familiar with desert garden landscapes than Madanies who lack such prototypes in their urban realm. It is apparent also that art or nature related professionals are more supportive to desert-garden and desert-urban landscapes in both groups. Tucsonans, whether in art or nature related or non-related groups, also express a general dislike towards exotic-garden and exotic-urban landscapes. This can obviously be attributed to Tucsonans not being as familiar with Saudi urban landscapes as are Madanies. It is also due to a cultural belief that has developed that sees exotic green in desert landscape as 'wrong.'

Knowledge gained by formal education is substantially more effective among Madanies than Tucsonans. This can be explained by the fact that Tucsonans are more familiar with desert landscapes in both urban and wild settings and this has produced a culture that is appreciative toward desert landscapes. This conclusion is especially true if we compared Tucsonans responses to native gardens and urban landscapes which is generally positive, and generally negative to exotic gardens and urban landscapes. Another major conclusion in this factor is that among Madanies, differences between art or nature and non-art or nature educated participants are significant in the case of desert gardens and urban landscapes only, when both groups show a remarkable agreement toward exotic gardens and urban landscapes. This supports that knowledge gained by formal education is an important factor in establishing appreciative attitudes towards what is ecologically valuable, but with unfamiliar aesthetic qualities.

11.3. The effect of knowledge of desert landscape gained by informal education, on participant's knowledge, perception, and preference for desert landscape.

Knowledge gained by informal education (i.e. participation in desert related pastimes) does not have a significant effect on participants' knowledge of desert plants (see figure 10.17). On the other hand, Tucsonans are more literate of desert plants in comparison with Madanies as reflected in higher scores for knowledge. In general, knowledge gained by informal education did not have a notable effect on participants' perception of positive statements addressed to desert landscapes (see figure 10.18). Participants that are highly 'interested' in pastimes related to desert did however differ significantly from those who are 'not interested' in pastimes related to desert landscapes. In the case of perception of negative statement addressed to desert landscapes, a clear pattern of correlation was shown. Participants who are more informally educated about desert landscapes showed less agreement to the negative perceptions (see figure 10.19). Comparatively, people who are less informally educated showed a general acceptance of negative statements addressed to desert landscapes. A similar degree of contrast is found among Tucsonans and Madanies in response to negative appreciation of desert landscapes. Tucsonans in general are less supportive of negative statements while Madanies seem to support a negative perception. Informal education also correlates with responses to the alien nature of exotic landscape (see figure 10.20). The majority of Tucsonans see exotic landscapes as alien to their environments, and this was most strongly expressed in those with high interest in pastimes related to desert landscape. Although Madanies show a similar relationship, they tend to express less rejection to the idea of the alien nature of exotic landscape, presumably because they only know exotic urban landscapes.

There is a clear variance between Tucsonans and Madanies in term of landscape preference ratings of exotic garden and urban landscapes in both interested and non interested groups (see figure 10.21, 23). Knowledge gained by informal education does not have a substantial influence on Tucsonans and Madanies preference rating of exotic-garden landscapes. On the other hand, there is a clearer trend in the Madanie's and Tucsonan's preference rating of desert-garden (see figure 10.22), exotic-urban and desert-urban landscapes (see figure 10.24). It seems also that Tucsonans and Madanies contrast in responses toward exotic landscapes only, but demonstrate a great deal of similarity in preference rating of desert landscapes. This lead to the conclusion that the more knowledgeable the participants are the more appreciative of desert landscapes they become. Exotic landscapes, whether garden or urban, are favourable to Madanies across the five levels of informally gained knowledge. Tucsonans,

comparatively, are more favourable to desert landscapes, however, people with a higher level of knowledge gained by informal education are more in favour of desert landscape, when others with less knowledge are less appreciative of desert gardens and urban landscapes.

The general picture resulting from this assessment indicates that knowledge gained by informal education has a relatively minor influence on participants' knowledge, landscape perception, and preference for both exotic and desert landscapes. Although city groups and level of interest subgroups are generally significantly different in their responses, they showed less significance among subgroups. One of the explanations for this might be the bias, mentioned at the beginning of this discussion section, caused by most interviews taking place in Tucson in desert oriented recreational places where visitors are presumably favourable to such landscapes. This is supported by the notable difference in numbers of participants in 'interest groups' in both cities, (e.g. 59.6% of Tucsonans are interested in pastimes related to desert landscapes, whereas 8.8% only of Madanies are interested).

11.4. The effect of familiarity with desert landscape gained by life spent in desert environments, on participants' knowledge, perception, and preference for desert landscapes.

The results for this factor are the most conclusive of the factors hypothesised in this study as indicators of positive emotional relationships with unfamiliar aesthetic qualities of desert environments. It shows, for example a conclusive trend between familiarity gained by spending different proportions of time in desert landscapes. The more time spent in desert landscapes the higher the scores, indicating better ability to distinguish between native and exotic environments among Madanies and Tucsonans (see figure 10.25). The results also demonstrated a clear trend (see figure 10.26), between length of time spent in desert and perception of positive responses associated with desert landscapes among both Madanies and Tucsonans. Similarly, a clear trend between time spent in desert and perception of negative response associated with desert landscapes, was present in Tucsonans, and to some extent in Madanies (see figure 10.27). In addition, there is a conclusive trend between time spent in desert and perception of 'the alien' nature of desert landscapes among, Tucsonans and Madanies (see figure 10.28). In general, participants were more confident in responses toward negative attitude than positive attitude. They showed more significant differences on responses toward negative perceptions than positive perceptions.

As hypothesised, the results confirm that people who have more time in desert environments are more appreciative of desert aesthetic qualities than those who spent more time in exotic landscapes

(see figures 10.29, 30, 31, 32). This conclusion was based on responses to both exotic and desert landscapes, positive preferential attitude toward desert landscapes, and negative preferential attitudes toward exotic landscapes. This conclusion adheres to Kennedy and Zube (1991) study in which participants who were short term residents in the desert city, were less appreciative of native desert vegetation and preferred exotic plants.

It is worth mentioning here, that Madanies, again, showed more conclusive results in relation to the hypothesis than Tucsonans, however, Tucsonans favour desert landscapes at the expense of exotic landscapes, when Madanies do not clearly distinguish between desert and exotic landscapes. In conclusion, the data supports that familiarity helps to better distinguish between native and exotic landscapes, leading to preferences that favour desert environments.

11.5. Notes upon the empirical study.

The discussion this far has dealt only with the results of the comparative study as presented in (figures 10-1,2,3, and 4). The process of undertaking the experiments did however in itself generate valuable qualitative information on participant's values and attitude which included:

- i) Madanies had showed great deal of nostalgia toward traditional landscapes that exemplified rural areas and historic palm gardens. Many empirical studies supported that yearning for traditional life styles is a common reaction. Coffin and Lipsey (1981), attributed this kind of reaction to people appreciating the fact that country life is more satisfying than city life. Although the fact that Madanies demonstrated poor knowledge of desert environments, their positive responses toward desert landscapes is mostly attributed to emotions that include nostalgia.
- ii) Water was a common interest among most Madanies. In contrast to Tucsonans, Madanies showed a unique reaction to landscapes that contained water feature.
- iii) Older people strongly wished to identify native plants by common names. They also showed affectionate emotions toward traditional cultural landscapes by uttering emotional expressive statements like '*ya salam*' (oh Peace, one of Allah's fine names, calling Allah by this name means Oh Allah how Peaceful). Rabinaowitz and Coughlin (1970) noted that when people like an image of a landscape they tend to make more comments about it. They find themselves able to talk about it because it means something to them. When people favour something, it means they feel it is familiar to them, and familiarity give capability of expressing the self against the stimuli because it is already there, known or may be previously experienced.

- iv) With Tucsonans, although images depicting landscapes that were similar to those of Arizona, it seemed that there was a general curiosity regarding each single image especially images of urban landscapes. They were also critical regarding urban environments appearing in natural scenes, whereas Madanies were less aware to an obtrusive blending of natural and urban landscapes. Landscape visual assessment studies have reached a clear consensus on participants' negative reaction toward man-made objects in the natural landscape, whilst they showed no negative reaction to naturally occurring objects or patterns in the landscape (Rabinaowitz and Coughlin, 1970). An interesting observation from an American participant was that in these images contrast in colour between the urban landscape does not appear as a strong as between urban designed and wild desert landscape. In general American participants were conscious of naturalness of the landscapes, spatial formations, size and density of plants, and whether or not each natural landscape had its counterpart in Arizona. It was clear that the tendency of American participants to compare the two landscapes, (Saudi Arabia and Arizona), reflects a good knowledge of the local native landscape. In the Saudi case it was clear that older people were more knowledgeable of native plants than young people, and similarly to Tucsonans they wanted to know the names of desert plants.
- v) In the discussion that followed the assessment sessions, lay Madanies marvelled at the aesthetic qualities of Medina desert landscapes when most professional respondents including architects and landscape architects were surprised by such ideas (i.e. desert native landscape can be associated within the urban realm).
- vi) Although foliage density and colour were not a substantial issue of discussion raised by participants of Medina and Tucson, shading of trees was a major consideration in Medina only. This conforms to the hypothesised assumption of this research that Medina people have an aesthetic formula that derive mutually from both beauty and functionality.
- vii) Geometrically shaped foliages of trees and large bushes were amongst the least preferred plant's forms, in Tucson. On the other hand, natural sculptural foliage canopies were among the most preferred by Tucsonans.
- viii) Tucsonans and Madanies both strongly preferred the romantic image of the road penetrating through forest of palms and *tamarix*. While Madanies could not conceive living an urban life in such landscape, Tucsonans found it very possible. For Medina people, such a model does not exist in the current urban fabric and most people consider such a scene as rural rather than suburban insetting. Although this suburban atmosphere existed in the past of Medina, this category has not been re-created by

landscape designers as an alternative urban setting. Consequently, modern Medina has no experience of how this environment could support an urban life. Tucsonans, however have this model in plenty inside the city as well as on the edge in the suburbs. This strongly supports the hypothesis of the research that proposes that the lack of successful models of urban development in the actual landscape restrict public understanding of how alternative landscapes could be developed.

- ix) Tucsonans showed significant recognition of the terms 'native' and 'exotic' plants. For most Madanies, 'native' and 'exotic' is not a common dichotomy by which they differentiate between plants. Older Madanies was the only group that expressed a sensitive understanding of this difference.
- x) For both groups, Madanies and Tucsonans, water was an element of attraction in all forms involved in this study, however, it has been noted that Madanies were particularly attracted by the *diwan* as a setting for water feature (image 3-2L). Although Madanies were not aware of the environmental implications and aesthetic values involved in the composition of *diwan*, most respondents attributed their like of *diwan* to several reasons that are rooted in historic values. It appears also that the word *diwan* by itself has a powerful stimulation for memories and expressions of affinity even without seeing a clear image. This was evident when participants were able to discuss several details of *diwan* although the image presented was rather abstract eye-bird view. In contrast to other cases where respondents have placed responsibility of dealing with environmental problems on the doorstep of the authorities, it is worth noting here that in this particular issue, most respondents decidedly bore responsibility as a public for the depletion and deplorable condition of Medina *diwans*. In Tucson, on the other hand, respondents showed no particular attention to this image. The most common question, however, was whether the waterfall and water body are natural or artificial, images (3-8L) and (3-8-R). Although both groups liked the concept and showed no remarkable opposition against the design, they generally criticised its massive scale. For Medina respondents, they believed that this model of water feature has been repeated too much in Medina. For Tucsonans and landscape architects, artists and some architects and planners of Medina, environmental considerations were apparently employed in their language. In one of the cases, a Tucsonan critically questioned the importance of the site versus the source of water and its cost. A landscape architect in Medina said 'the beauty this water feature yields does not compensate the fact that we are spoiling the most valuable natural resource of Medina.' A Madani artist said 'if I would admit, as indeed I do, that art is the finest and intelligent tool of communication I would doubt

that the designer of this particular water feature means what his design says to me: it says water is worthless in this desert city.' In his words, this artist implied that designs do convey messages to the public and these messages have an outstanding role in teaching the public. It might then be concluded that when environmental considerations in water features are a concern among Tucsonans, they were so only with professionals of Medina. It might also be concluded that Medina people are more concerned with the historic value and naturalness of water features rather than basing their preference on environmental implications. Analogous to what Zube (1998) beheld in a similar situation in Sierra Vista, Medina residents due to what they have experienced of dramatic transformations in the cultural and natural landscapes over the last three decades, it is not surprising that they would not correlate between urban needs and environmental destruction. In addition, environmental education is still youthful in Saudi Arabia.

- xi) It is worth noting here that participants had rapid responses in rating scenes in term of preference. Although time was set as 30 seconds/each presentation of paired images, scenes of part three took lesser time. However, participants tended to spend longer time in assessing semantic representation of visual perception against scenes in part two. Kaplan (1979, cited in Miller 1984) noted that 'preference decisions seem to be almost second nature, while decisions based on descriptive criteria involve more thought to reach a conclusion.' In general, as the assessment progressed, the more the participants became familiar and therefore faster in the rating procedure. In Medina, on the other hand, participants took longer time than Tucsonans to identify plants in term of being native or exotic (part one of the questionnaire).
- xii) Madanies, in comparison with Tucsonans, showed more intense signs of ambiguity toward the term 'bio-diversity' as an aesthetic value. This indicated that lay people of Medina are unaware of ecologically based aesthetic values. This strongly expresses also that Saudis of all different categories continue to prefer vegetation with conventional urban values like lining streets, shading sidewalks, sheltering families sitting in parks, that in most cases does not included values like bio-diversity. Participants, in general, seem to show general agreement upon considering various characteristics of trees like colour, density of foliage, form, size, and texture rather than the spatial configuration they form.

To establish a theory of aesthetics, investigations have to deal with, as Townsend (1997) suggested, 'the language used to express perception and senses, . . .' Describing landscape seems to be one of the most complex tasks for both the public and specialists. To transfer

what one discerns through the senses into a few precise words is not an easy task. The verbal description of feelings, and the meanings people give to these feelings are not by nature a talent. Rather it is an attitude people learn to embrace and develop in order to discipline their emotional relationship with nature. Yi-Fu Tuan (1979) suggested that the landscape is difficult to describe due to its nature of unbounded entity. What we frame through our vision of any landscape is an image that will be proceeded by infinite number of images. Without a discipline, these images will remain raw, and generalised under broad dichotomies like nice and ugly, natural and cultural, etc. With a discipline, these categories would become narrower, precise, and most important of all, responsive to cultural identity. The discipline comes to transform the visual media of landscape images into legible verbal or graphical configuration. Poetry, painting and landscape architecture are all disciplines that are able to capture meanings of landscape, however, through different ways and for various purposes. This field in landscape research seems to be the discipline which sums the whole picture in a more inventive way. In literature, poets apply rhetorical words to elements of the landscape. Their intention is to utilise verbal interpretation of natural beauty for the purpose of human spiritual exhilaration. In paintings, painters frame certain images of the landscape and transform them into forms that express time, culture, nature, ideals, and values of a society. In landscape architecture, as in some other areas of studies, research tracks determinates that shape recognition of landscapes, in particular by cultural and natural phenomena. The importance of exploring societal perceptual modes and prospects lies in finding out what design programs can be terminated, changed, initiated, and/or developed to allow the making of landscapes that the public, as individuals and collectively as a society, really like to see and interact with.

The beauty Medina people see in a natural, 'wild or designed,' landscape derives from the fact that they value the perfection that Allah placed in the natural environments which leads to perceptual expressions that embrace a religious nature (see section 1.3). This justifies the way Madanies express their perceptual experience by religious statements such as: *ma sha-a Allah*, *suban Allah* (by the will of Allah, Glory to Allah, respectively). By this a Muslim does not only avail himself of every opportunity to establish a chance of *zikr* (praise) that nourishes the soul, but also express his i) gratitude to the Creator, ii) state an admiration and iii) submit entreaty to the Creator so He might sustain such beauty and save it pure against sorts of envy.

Fascination by and reaction to a natural stimulus is a response to *fitrah* (an innate intellect) (Qutb 1982). He Adds, in Islam, Muslims must recognise the difference between worshipping beauty of nature and worshipping the Creator of the beauty of nature which can

be attained by admiring the beauty of His creation. This difference has informed Muslim's way of appreciating nature's beauty. This has been a lesson taught by Quran in which Allah asked the faithful to be thankful for His benevolent bounties.

In the interviews conducted in al-Baida Nature Park in Medina, interviewees had frequently used the statements '*Ma-sh-a Allah, subhan Allah, Allah, and beautiful view*' respectively as the first admiring statement when they were asked to respond verbally to a scenic landscape represented by an image used in the landscape visual assessment taken from al-Baida Natural Park in Medina (image No. 2.1). This leads to the conclusion that people of Medina are used to use appreciative religious statements to represent their admiration of beauty including beauty of nature. It has also been noticed that although such perceptual statements are uttered spontaneously, the language and accent used is surprisingly formal. The uttering of religious phrases like 'by the will of Allah,' that precedes phrases of admiration of landscape have a significant difference if compared with forms of admiration used by other cultures. To an American viewer, for example, a particular landscape setting might provoke statements of admiration that would range in term of formality of language; from formal like, 'it is a spectacular view' to the informal like 'that is nice.' By uttering such statements no one expects any consequences to such a reaction to a landscape. In Islam, the religious expression of admiration would lead into other metaphysical actions which include:

- i. The harvesting of worldly and/or heavenly *adja* (Divine reward), as *zikr* (laudation) is entitled to the limitless Divine reward as stated clearly in many Quranic verses and Hadith.
- ii. the provocation of the Divine blessings that would enhance and improve the state of beauty of the admired setting and to protect it from sorts from envy.

People in Medina tend also to differ in their response according to age. Young people in most cases verbalise their perception in singular adjectives followed by statements that in most cases repeat the meaning of the first one. People over this age tend to discuss the matter and introduce more than one subject in their aesthetic appreciation of the landscape. This might be attributed to, as Schauman (1998) concluded, that older people are more likely to have had personal experiences with nature through farming, which enriched their experience with the natural environment. For example a young interviewee answered the question: 'how would you describe this landscape from an aesthetic point of view?'

'Glory to Allah, it is a beautiful nature, every thing here is fantastic and looks very nice' (a young person in al-Baida area, summer 1999).

But an older interviewee answered the same question by saying:

'Thanks are only due to Allah, it is beautiful, by the will of Allah. Look, I swear Allah, and thanks are due only to Allah. In this area, Allah bestowed us with a beautiful nature that you rarely see in other regions. You see the trees, the mountains, the clean air, the nice breeze, every thing. . . . at the end of the day you might hate it going back home, you don't leave this beauty and go home to enclave yourself in these concrete blocks, thanks are due to Allah. Don't you feel a relief by just sitting in this beautiful nature' (an old person in al-Baida area, summer 1999).

Saudis in general also differ from Americans in they do not use metaphoric statements in expressing their appreciation of the landscape. Rather they tend to use short and straightforward adjectives prefixed by religious statements in all their aesthetic predicates. For example an interviewee from Medina answered the question: by saying; 'subhan Allah, it is a very beautiful nature.' The word 'very' and its synonym is also one of the most recurring term that prefix all aesthetic adjectives in the Madany language, like saying:

'wa Allahi, hadhi tabi 'aah jamilah jiddan'

I swear God, it is a very beautiful nature.

or

'ya Salam, jamilah jiddan'

Oh Peace (Allah), or very beautiful.

or

'ma-sha-Allah, ma fi Ahla min hadhi al-tabia 'aah abadan'

by the will of Allah, there is nothing more beautiful than this nature at all.

or

'subhan Allah, tabi 'aah sahrawah raei 'ah jiddan'

'Glory to Allah! (He is free) from the things they ascribe to Him,' fantastic desert nature.

Arizonians' use of adjectives in aesthetic predicates are usually in complete sentences. For example, an interviewee does not answer the question 'how would you describe this landscape from an aesthetic point of view?' in a single adjective. Rather, he would compose a couple of sentences that explain his impressions and feelings in a way that rhetorically express his preference. Most interviewees tend to include more than one aspect simultaneously in their description of their perceptual experience. Although most of the interviewees are Tucsonans, the answers to the question: 'how would you describe this landscape from an aesthetic point of view?' take a comparative style. The following examples of responses are addressed here to illustrate these points:

'ya, it's a nice view, who ever comes here couldn't help but fall in love with this beautiful desert landscape' (a Tucsonan, met at Sabino Canyon, spring 1999).

'ya, I like it, I came from north, where the landscape is dominated by foliage covered hills, so you might imagine how I am choked by this desert landscape. It is totally engaging.' (a visitor in Tucsonan 1999).

'It pleases me in different ways. . . . I liked it here, weather is fantastic, the landscape is beautiful around here' (a tourist from California met at Sabino Canyon, spring 1999).

It can, then, be concluded that cultural differences play a significant role in shaping perceptual expressions against natural environments.

11.6. Conclusion.

This cross-cultural study has chiefly focused on the hypothesis that knowledge, (whether gained by being formally educated in art or nature oriented professions or informally by being interested in pastimes related to desert environments), and familiarity, (gained by age and time spent in desert landscapes) results in positive perceptual and preferential attitude toward desert environments. The results of the study suggest that this hypothesis is indeed correct.

This conclusion is based on the following findings:

- i) In contrast to the conclusions of some studies that there is a general dislike of desert plants, (e.g. Cary and William 1996; Heerwagen and Orians 1993), this study found that inhabitants of desert cities, with the exception of the <25 years old age group, regardless of cultural differences were, in general, appreciative of aesthetic qualities of desert vegetation.
- ii) The first glance at the results of this study indicate that although Madanies (56.1% of participants) and Tucsonans (43.9%) have, in general, a concurrence in perceptual and preferential attitudes that, in general, expresses a positive perception of desert (garden and urban) landscapes, significant differences were found in perception and preference of exotic (garden and urban) landscapes. Tucsonans in general are more positive toward desert landscapes. Many previously published studies support this conclusion. Kennedy and Zube (1991), for example, concluded that the majority of residents of Tucson would prefer that the surrounding desert atmosphere is brought into the city rather than creating a contrast with the desert by adopting lush exotic vegetation in the city centre.

Although Madanies showed no substantial dislike of desert landscapes, they, in general, rated desert and exotic landscapes equally. This suggests that Madanies do not have the ability to distinguish between desert and exotic landscapes. Madanies appear to have no clear cultural understanding of the difference between 'nativeness' and 'exoticness' within landscapes. The religious influences on Madanies' cognition of the natural environment, as discussed in detail in Chapter 2 of this study, might be one of the major explanations for Madanies' non-discriminative attitude toward native and exotic landscapes, which prevent mental or emotional segregation between native and exotic landscapes in the Madanies' perceptual determinants of landscape beauty. Both are creation of Allah, and this is an enough reason to restrict discrimination in environmental perception and preference. Madanies additionally seem to be confused; living in a transformed westernised culture it is not surprising they are ambivalent about these ideas. Another issue is that culturally (in the urban realm at least)

Madanies vision of nature was a very heavily amended one based on irrigated agricultural palm gardens; quite different to Tucsonan appreciation of nature as it really is.

- iii) The substantial agreement between Madanies and Tucsonans in response to assessment factors other than age, (education, pastimes, and life spent in desert), on perception of positive responses associated with desert landscapes is evident that both groups have the ability to see aesthetic qualities in desert landscapes when these qualities are suggested as in this study, through positive statements. This occurred for Madanies too, despite the fact that in the preference assessment, Madanies were far less positively responsive to desert landscapes than Tucsonans.
- iv) Tucsonans (many of whom are new comers to desert environments), are more aware of desert aesthetics than Madanies (who are generally long term native desert residents). This contrasts what Kearins's (1981) findings upon visual spatial memory among desert Aboriginal and white Australian groups, who concluded that desert Aboriginal participants performed significantly better than the white Australian (who spent less time in the desert environment) on all tasks related to living in deserts. This contrast can be explained by the fact that Aboriginal Australians have lived in arid environments for 50,000 years and continued to do so to the present, however Saudis changed their living environments and life style. Another example can be drawn from Kennedy and Zube's (1991) which concluded a substantial level of environmental illiteracy among students participants in desert studies in Arizona. They reasoned student's negative perception of planting trees in what they called 'valuable ecological niches' in desert landscapes to the anthropocentric attitude students maintained in this natural-cultural assessment.
- v) On the other hand, Tucsonans unexpectedly expressed a remarkable level of dislike of exotic garden and urban environments. This result contradicts some other studies in which Americans, from non desert environments, were found to prefer exotic urban landscapes over local familiar ones (Nasar 1984). This is presumably due to the impact of education in the past 20 years.
- vi) There are several generalities among responses of participants, which confirm that across all participating groups and subgroups, there is always a relationship between level of education, whether formal or informal, level of knowledge, and degree of familiarity and the ability to distinguish between desert and exotic landscapes in perceptual and preferential judgements. Consistency can be found among the Tucsonan's responses, much more than Madany groups, particular in response to the preferential assessments.

- vii) It seems, that there is a general agreement among all participating groups and subgroups regarding positive perception of desert landscapes, however Madanies differ in their response to negative perceptions of desert landscapes.
- viii) Madanies in general are more illiterate of desert landscape, ecological-wise, than Tucsonans.
- ix) The results of this study concur with Zube, Pitt, and Evans (1983) who claimed that children, middle-aged and elderly perceive the landscape in a different manner, although in this study the differences were least marked with Tucsonans.
- x) Knowledge, whether gained by formal or informal education, has a key effect on participant's perception, and preference of desert landscape, generally leading to positive attitudes to desert landscapes.
- xi) In general, the results support that participants react primarily towards the nature of landscapes rather than types of landscapes, i.e. they perceive desert garden landscape similarly to how they perceive desert urban landscape. Comparatively, they shown sharp contrast in perception across landscape types, i.e. participants different attitudes toward desert and exotic landscapes, whether gardens or urban.
- xii) In this study the participating groups showed consistent patterns of preference, although agreement on what they preferred was more prominent than on what they disliked.
- xiii) Madanies in general lack the dichotomy that characterised the Tucsonans responses toward exotic and native-garden and urban landscapes, i.e. they respond positively toward both desert and exotic landscapes.

11.7. General discussion.

Both parts of the study, the ethnographic investigation and the quantitative analysis, reached the conclusion that knowledge, was a substantial factor in establishing sustainable natural-cultural relationship in the past in Medina and in the present in Tucson. In Medina, at a time when traditional forces were at work, religion and tradition (which were the two major source of knowledge) were substantially involved in all interactions between people and nature. Madanies were in many ways able to sense the beauty of their desert nature, develop ways of enhancing this beauty to simultaneously satisfy aesthetic, social and cultural objectives. The historic palm garden, to a great extent, was the vehicle through which Medina people expressed their appreciative perception, interaction with, and interpretation of their desert landscape. In Tucson, at a time technology¹ was already part of urban life, art, formal and informal education about desert environments (which were the two acceptable forms of knowledge for the society) developed to encourage an appreciation of desert. On the other hand, religion in Medina, as the case in all Saudi Arabia, is still a dominant source of knowledge and a judicial system, but not a major constituent in the contemporary relationship between culture and nature. Three decades of living within exotic landscapes has altered Madanie's perception of desert and forged exotic landscape as local and intimate, especially if we bear in mind that the Islamic definition of nature does not segregate native and exotic landscapes (see Chapter 4). Their perspective on nature in contemporary Saudi cities was narrowed down to mere ornamental and consumptive objectives. On a comparative basis, in modern Tucson, desert has been found to be aesthetically appealing (figure 10-34), artistically inspiring (figure 10-35), ecologically appreciated (figure 10-36), culturally accepted (10-37), and economically desirable (see Chapter 8) after long history of dislike. This transformation in perception was predominantly a result of knowledge; formal for professionals (e.g. artists, landscape architects, horticulturists, etc.), and informal for lay people (i.e. through art, literature, recreational facilities, media, etc).

This study also concluded that Madanies do not have a strong dislike toward desert landscapes (see Chapter 10). As a result, introducing desert landscape into the urban realm is unlikely to produce a strong negative reaction. Restoring knowledge of the natural-cultural relationship is a necessary prelude to such a step. Attempts should be devoted to re-establish

¹ It appears that technology was not a factor in alienating the desert environments in Tucson, as in contrast was the case in Medina. As a result, technology can be ignored as a justification for rejecting desert, (i.e. good deal of technology has been facilitated now to investigate, monitor, enhance, and improve desert sensitive landscapes in Arizona, see for example; Halvorson and Gebow 2000; McPherson and Saarinen 1977).



Figure: 34, Catalina Park in the suburb and the Botanical Garden in the inner city of Tucson reflect how desert is perceived aesthetically positively.

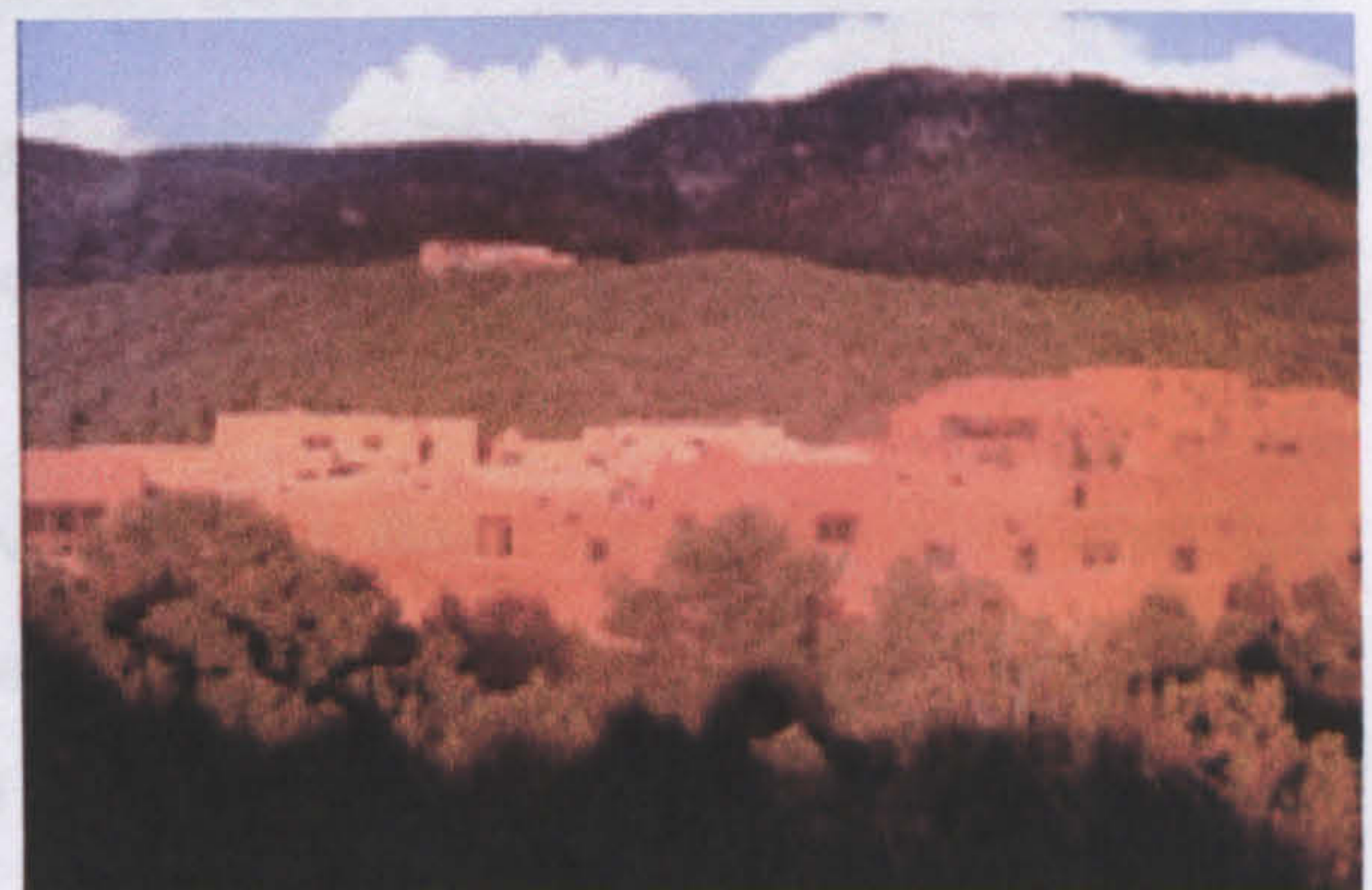


Figure: 10.35, there are many examples in modern art (on the right hand side) where artists, landscape architects and architects found a source of inspiration in the desert natural and traditional cultural landscapes (on the left hand side). Source of images on the right: (copied from different books), top left (Golt 1980), middle left (Gordon 1979).

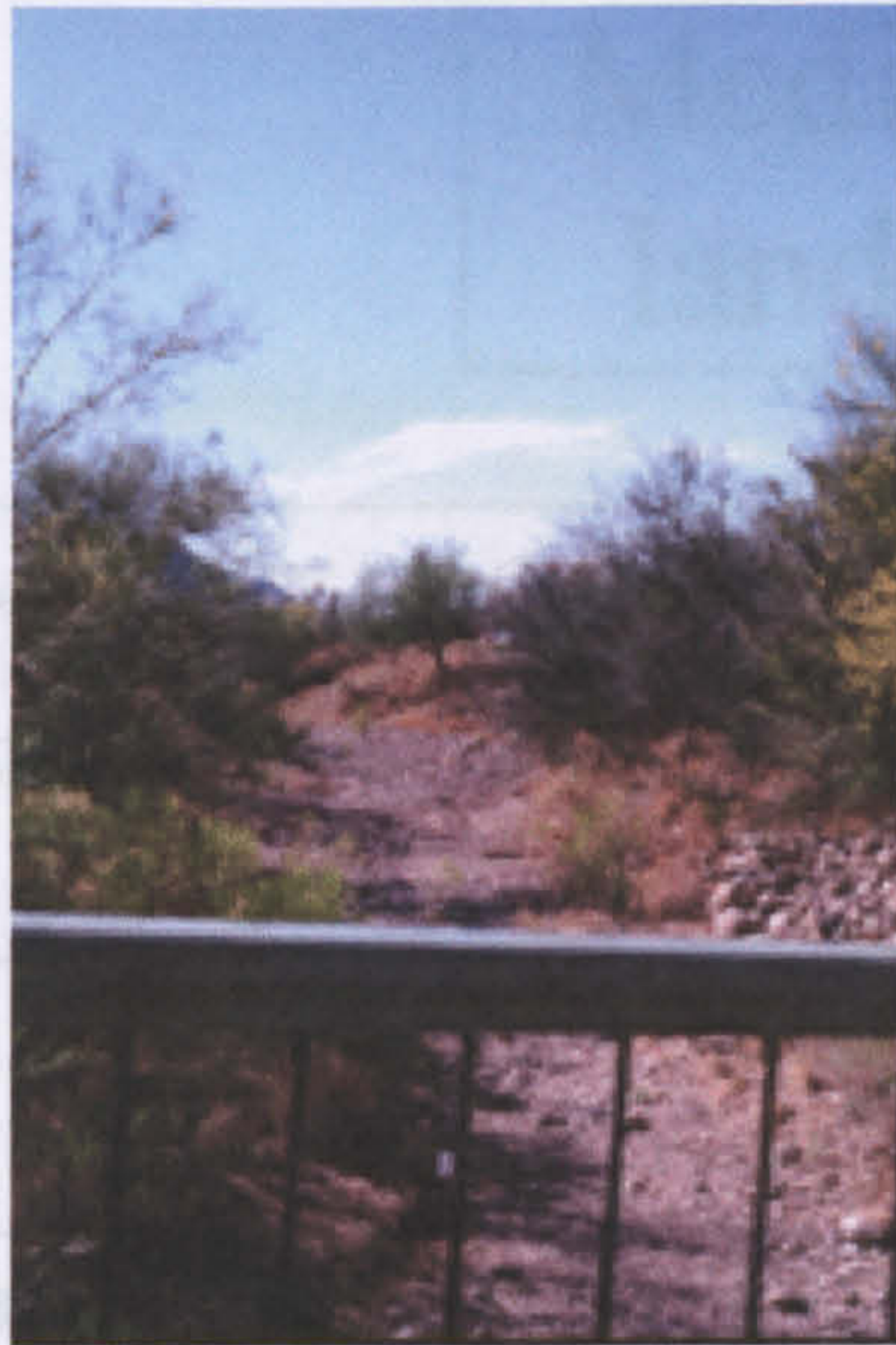


Figure: 10-36, Ecologically sensitive landscapes exist in Tucson within the urban realm with appropriate facilities and regulations that allow continuity for the two worlds.



Figure: 10-37, Saaaint Bede's Anglican Church (with a desert-like garden) in Tucson and public foot paths in the wild desert are examples of American cultural acceptance of desert landscape in the urban realm. Source of image on the right: (Thompson 1998).

knowledge; religious as well as scientific knowledge, about desert environments in Saudi culture in order to value the wisdom of appreciating the less scenic landscapes; i.e. 'desert.' The establishment of a model², (e.g. natural museum, desert-like public parks, gardens, and streetscapes) would be a useful tool that would inform the society about cultural, social, and economic payoffs of reintroducing desert landscape into the urban realm (see figure 10-38).

The public should be tutored that incorrigible devastation in desert landscape, compromising sense of place, risking environmental uniqueness and local cultural entity should not be accepted as a natural result of urbanisation and the acquisition of modernity. The public

² This is what Jamiel Akbar (1992) highlighted in his 'Building on Earth in Islam,' that without re-rooting the knowledge and re-inventing a successful model in the heart of the society, little triumph would be expected in revitalising local identity.

Medina as a landscape.

Literature, as a major tool of expression, that exhibited Madanies love of desert landscape.

Religion, as a major constituent of the view of nature and values.

Medina historic gardens, as the most conspicuous example that expressed sustainable natural-cultural relationship

Tradition, as a source of sustainable technique and methods.

The economic boom as a governing factor that enabled great deal of changes in the culture and urban environment.

The west, as a source of modern life styles and technology.

Some national civic projects forecast good opportunities for the introducing of desert landscape in the urban realm..

Tucson as a model that states a successful model of desert landscape.

- **Restoration of knowledge of desert environment (religious and scientific).**
- **Establishing a model to inspire the society.**

Figure: 10-38, Factors affecting traditional and modern attitudes to urban desert landscapes. 477

should also learn that civic benefits that urban development generate, i.e. offering new jobs, creating opportunities for new business, improving the urban environment, etc. should not surpass other considerations, i.e. environmental quality of natural landscape (Maurrer and Napier 1981), adherence with intimate knowledge that relate to the natural environment, and positive appreciation of desert landscape. There is an implicit advantage in establishing a sustainable development model and environmentally tutored culture over merely establishing nature reserves outside of cities, for this would bring the society back to its culture, closer to its natural landscape, and change their role from being a potential source of devastation to considering the natural landscape as a major component of the amenities of the community.

In the Medina desert, there is diverse wildlife (figure 10-39), astonishing natural beauty (figure 10-40), and numerous natural phenomena (figure 10-41) that the public know nothing about, but can be facilitated to create educational-recreational opportunities in Medina instead of relying only on typical zoos that accommodate animals from other habitats. The desert-fish life cycle, as an example, is interesting enough to be exhibited in natural museum. The fish lays its eggs in spring in hemisphere shape basins the female dig to create a greater depth of water for a better chance of survival for the eggs. In summer, the pond dries out, the adult fish die, but eggs stay dormant over summer until the next rain comes. During the rainy season, the basins with the concave form will help to collect any amount of water for the eggs to go through the process of hatching. Eventually, eggs hatch and a new life cycle follows the old one. When discussed with interviewees, most respondents, educated and non-educated alike, reasoned the presence of fish in desert seasonal ponds by reference to mythical notions like 'the eggs of the fish come down from outer space with rain,' when others said they do not know, but none gave a correct scientific justification which express a good knowledge of desert environment among the public. Another example is the giant-spider, which was unknown for all interviewees. On the top of Auhud mountain (altitude 478m), where no evidence of life is found all the way up to the mountain top during summer days, a colony of giant, colourful, poisonous, spiders dominate one of the highest mountain tops. Long delicate bristles are dispersed all over their body. To increase chances of success in finding food, spiders roam the rocks in swift perpetual movement searching for tiny worms and flies that strike their bristles triggering the feeding reaction of the spider.³ There are several advantageous opportunities in the suburban part of the city where a desert landscape model could be initiated. These advantages are: i) parcels of land for building development are large

³ This information about the desert-fish and giant-spider is based on the author's observations based on three months monitoring during the summer of 1998.

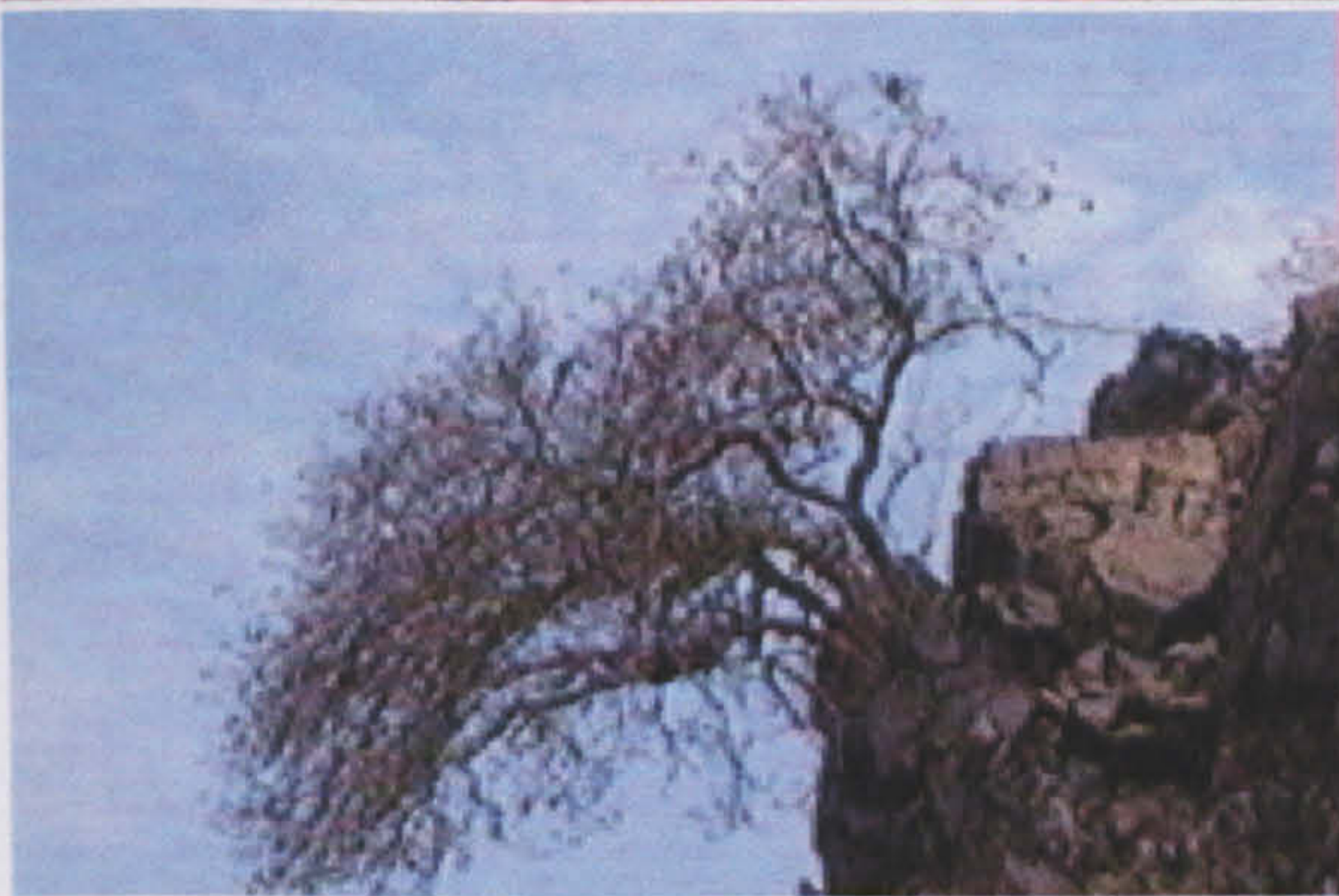
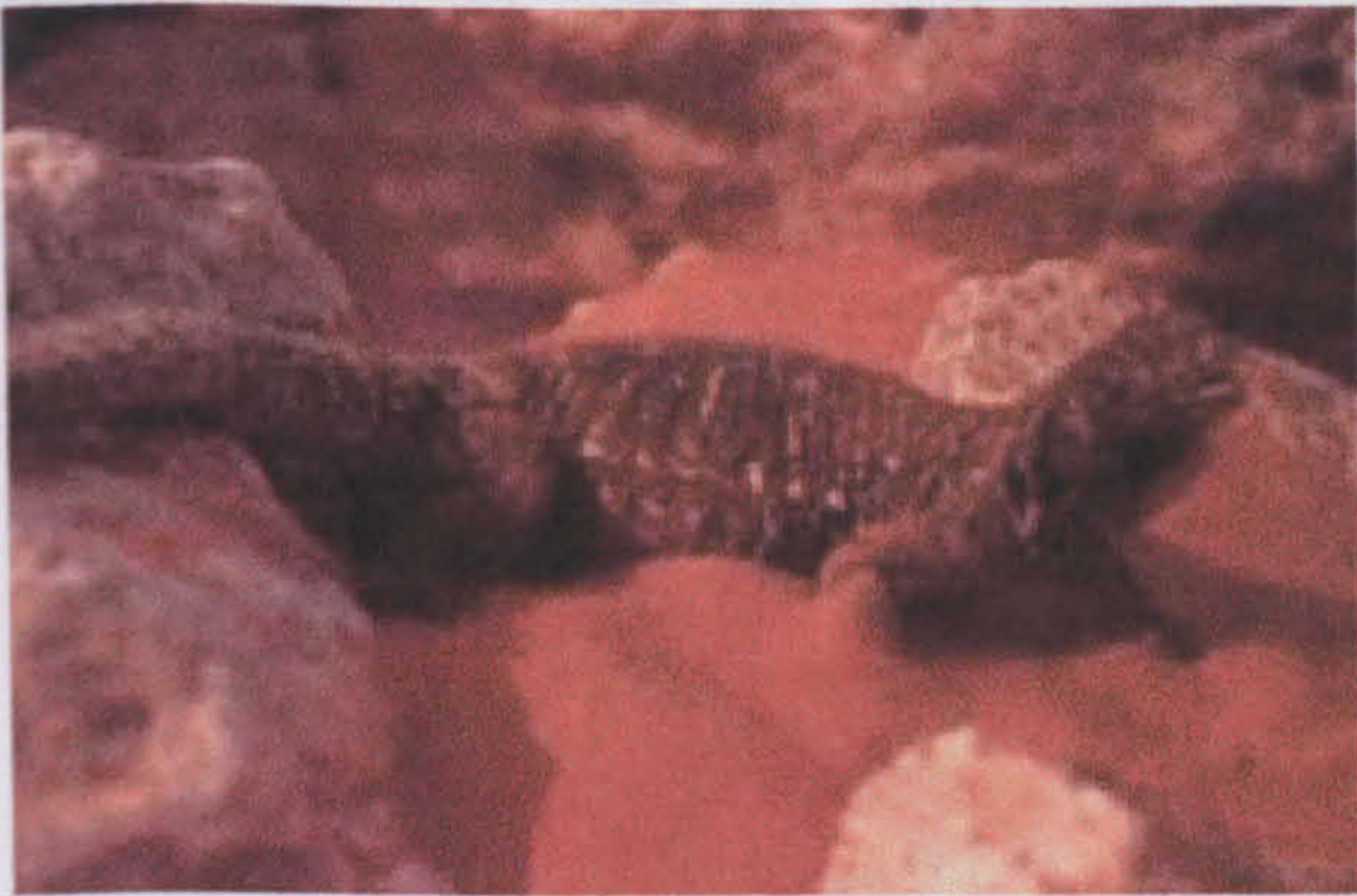
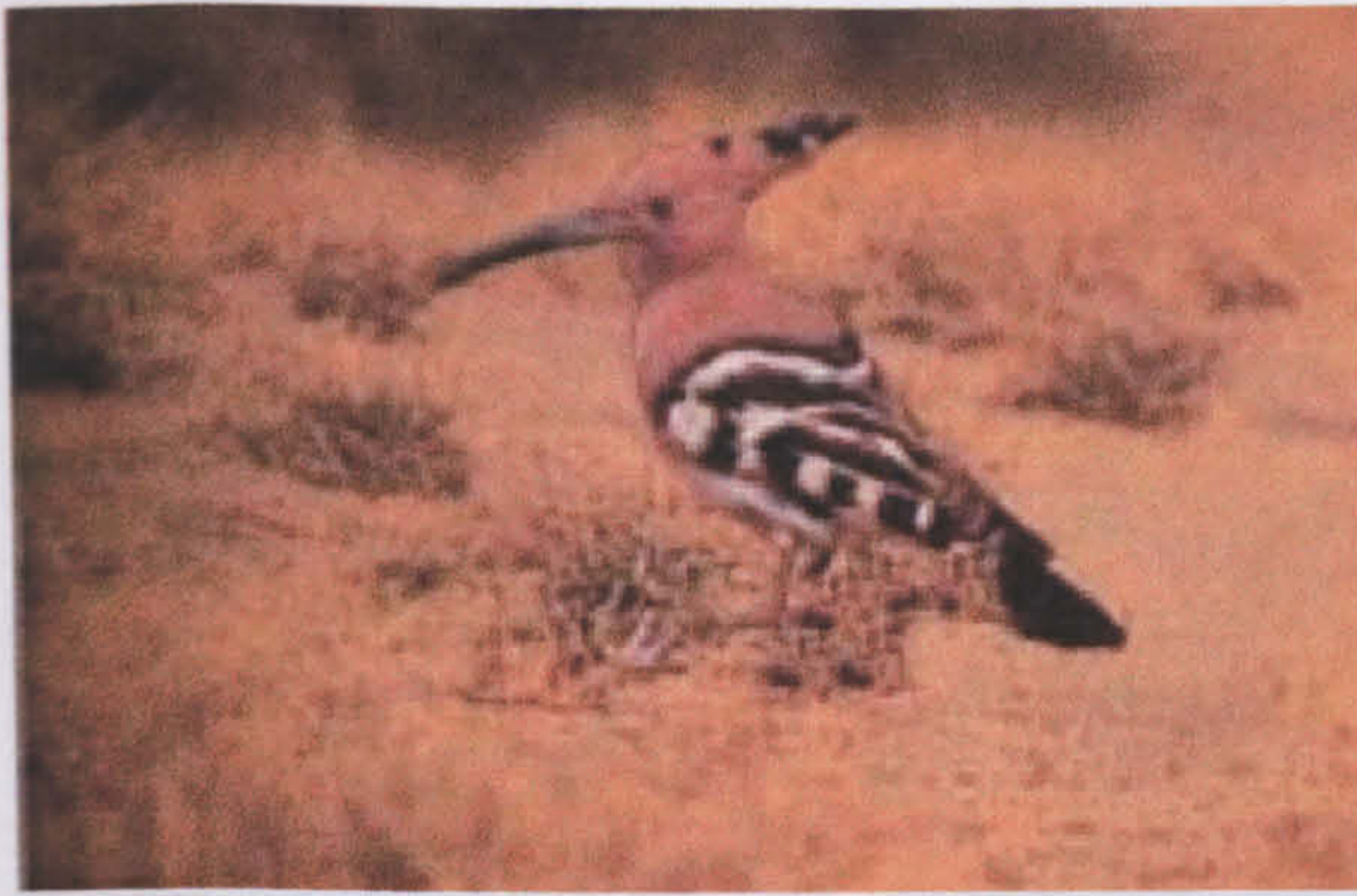


Figure: 10- 39, Although the desert around Medina look lifeless but for clumps of acacias and plantations of scrubby landscape, there are however many surprising types of wildlife once one leave the car and look closer between plants and on the floor of the desert. Such diversity in birds and animals in addition to their unique adaptation to desert environment, support the logistics behind sustainable-educational-recreational facilities that would engender a better understanding of the fragility of desert and restore the traditional natural-cultural relationship.



Figure 10-41. In desert environments, wildlife possesses diverse adaptations to desert which are worth highlighting, understanding, and appreciation to the public. Exhibition of such diversity, yet fragile natural processes, would enrich the urban landscape and the desert landscape.

Figure: 10-40, desert diverse flowers are as showy as others of temperate landscapes, yet have never been used in the urban landscape, neither shown as images on greeting cards, stamps, etc. Top (*Capparis decidua*), middle (*Calligonum comosum*), and bottom (*Abutilon pannosum*).



Figure 10-41, In desert environments, wildlife possesses diverse adaptation to desert which are worth highlighting, understanding, and appreciating by the public. Exhibition of such interesting, yet fragile natural phenomena would tutor the society more about the value of desert landscape.

enough to accommodate such a scheme, ii) these lands are less expensive in comparative with others in the inner city, iii) the area would be close to desert 'natural' landscape, iv) it is the landscape most vulnerable to degradation (Greenbie 1981), and such sustainable schemes would restore the positive value Madanies held toward the desert for their long history. In conclusion, the establishment of a model of desert landscape in urban areas should be based on the following strategies:

- i. To re-install Islamic principles and regulations to the level that would revitalise and re-root local cultural values toward the natural desert environments in the society, and engender public awareness, understanding, and appreciation of the natural environment,
- ii. To aid and promote educational programs capable of re-introducing cognitive acceptance of desert landscapes in both urban and suburban areas, to change the local culture toward desert natural beauty.
- iii. To highlight the significance of enhancing and developing, not only desert natural habitat and resources, but also cultural traditions, values and techniques.



12

Appendices.

Attitudes towards designed landscapes in two desert cities: Medina, Saudi Arabia and Tucson, Arizona.

12. Appendix: 1. The Questionnaires (Arabic and English).

12. Appendix: 2. (the following data is based on information collected from interviewees: (al-Turki, Raffah, Sairafi 1998). In addition, the following two books were consulted: (al-Husaien 1992) for section 1.5. *ahwash*; (Hifdh 1996) for section 1.12. *al-Àioün*.

12.2.1. Names Used for Palm Tree and its Derivatives.

1. *àajayiz*: old palms .
2. *aàjaz nakhl*: palm trees without heads (canopy of fronds).
3. *àasyīb*: the bottom part of the *jaryīd* (fronds) that have no leaves.
4. *àawānah*: if found singular (not in a group).
5. *àazaq* or *shimrakh*: raceme (the single raceme in a cluster of dates)
6. *Ablahat*: when spandix are fertalised and turned into little fruits.
7. *absarat*: when little fruits develop into *busr* (little unripe dates).
8. *ahrar*: fine types of palms (valuable in term of their extra fine dates).
9. *al-àaryah*: the sold or given away dates (of which the amount is unknown in weight or volume).
10. *al-àawahin*: the most fresh part of the fronds located at the center of the palm's head.
11. *al-baàal* or *al-àushari*: when a palm develop deep roots and need no irrigation to grow.
12. *al-dagl*: low quality dates, from a taste point of view.
13. *al-kharś* or *al-harz*: leaving *ru'ab* (ripe dates) on palms to dry out and become *tamur* (dry dates).
14. *al-qaàid*: a short palm that one can pick its dates while standing on the ground.
15. *al-raqlah* or *al-àaidanah*: when a palm reach a height that one can not pick its dates while standing on the ground.
16. *Al-ʿayībah* or *àizaq*: other names for *nakhlah* (palm tree).
17. *amàat*: when its *balah* get the perfect sweetness.
18. *arʿabat*: when its red or yellow *balah* ripe into *rutab*
19. *atʿlaàat*: when it bears spadix.
20. *atmarat*: when its *ruʿab* (ripe *balah*) get dried.
21. *aum*: a palm of which a *fasiilah* is taken off.
22. *aurjün*: the yellow stick that connect the *gino* (the cluster that carry the dates) with the palm's head.
23. *azhat*: when its *busr* (unripe dates) grow large as *balah* in red or yellow color.
24. *bakhshah*: if found in a group, but not in a particular order.
25. *bakür*: if crop early in the season.
26. *basiqah*: when a palm reach the midway to a height of mature size.
27. *bilad*: traditional name of Medina garden (the most common name of Medina garden until now, its initial use has not been documented).
28. *busr*: unripe dates that have not reached its normal size
29. *dharyāà*: thorns on the fronds.
30. *duqqah*: dates that are, abnormally, small in size.
31. *ejhāl*: when a palm seize cropping.
32. *Fahal*: a male palm of which spadix can be obtained.
33. *fakhrāh*: dates that are, abnormally, large in size.
34. *fasyīlah* or *wadiyyah*: a small palm (less than one year old).
35. *ghadhyīdh*: spadix of male palm.
36. *ghubar al- ʿalà*: pollen.
37. *gino*: bunch or cluster of dates.
38. *haēit*: a walled palm garden (the most common name of Medina garden during the Prophetic period 622 A.D.).
39. *haēsh*: if found in a group, but in line structure (wall of palms).
40. *hashaf* or *yabas*: very dry and rotten dates.
41. *hawyīlah*: a small palm (a one year old).
42. *jamà*: a punch of low quality dates collected together.
43. *janyīb*: every good type of dates.
44. *jaryīd*: fronds.
45. *jbarah*: when a palm develop a trunk but one can still pick its dates while standing on the ground.
46. *jidad* or *šuram*: collecting the crop of palms.
47. *jummārah* or *kathar*: palm pith.
48. *Karab* or *karanīf* (plural of *kurnāfah*): the remained parts of fronds on the trunk after pruning.
49. *kariàah*, or *mukraàah*: when a palm is on an edge of water body.
50. *Khadhīrah* or *hāttah*: if its unripe date scrape off.
51. *khalʿ* or *khalyītʿ*: a bunch of dates that is composed of unknown varieties of dates (low in quality).
52. *Kharfah*: harvesting of palm tree.
53. *khwūs*: leaves of palm's fronds.
54. *kizan*: the cop that contain the spadix of the palm
55. *linah*: the fine varieties of palm trees.
56. *lownah*: unknown type of palms (invaluable).
57. *lyif*: fiber that can be extracted from between *kurnāfah* and *jizà* (palm's trunk).
58. *mgannam*: pruned palms.

59. *mhammilah*: when a palm bear large *agniah* (plural of *ginu* bunch or clusters of dates).
60. *mharshifah*: dates that have dry skin separated from the flesh.
61. *mikhraf*: a garden of cropping palms.
62. *misaqqif*: very old and nearly died palms.
63. *mnaṣfah*: half *rut'ab* (ripe) half *balah* (unripe).
64. *muhtajinah*: if a palm crop while young.
65. *mushqah*: when a palm gain the yellow or red color of its *balah* (unripe dates, some palms develop edible and sweet *balah*, some others develop inedible *balah* that could not be eaten until ripe into *rut'ab*).
66. *nawa* or *faṣiy* or *bizir* or *qit'mir*: seeds or stones of dates.
67. *qaṣar* or *qaṣar*: trunk of palm tree
68. *ramyīm* or *dyās*: the fallen *jaryid*, *lyif*, *gino*, dates, etc. on the ground that shred and decay over time and become part of the soil under palms.
69. *rayyan*: richly watered palms.
70. *Rujabiah*: if its trunk is tilted.
71. *saàaf*: the upper part of the fronds that have leaves.
72. *sahna*: If crop every other year.
73. *sahüq*: when a palm reach a full size of mature palm and has thick fronds.
74. *shabab*: a young palm (more than one year old, but a quite mature one).
75. *shayṣ*: very low quality dates that had dried out before it reached its natural form of ripeness due to faulty fertilization.
76. *shiq*: half a date.
77. *ṣubrah*: a pile of dates which is unknown in amount in weight or volume.
78. *ṣunbour*: if the bottom part of its trunk loose its *karab* or *karanief* (the remained parts of fronds on the trunk after pruning).
79. *ṭalà*: spadix, both male or female.
80. *tawbyir*: fertilizing palms by dispersing pollens on female palms' spadix.
81. *wajaf*: the dry empty *kizan* (cops of spadix).

12.2.2. Names of some of the most popular and historic *Bilads* (gardens) in Medina:

- | | | |
|----------------------------------|-----------------------------------|-------------------------------------|
| 1. <i>Biald</i> al-Murjaniah. | Sharief, located within | 39. <i>Bilad</i> al-Mhmoudiah* |
| 2. <i>Biald</i> al-Qabbaniat. | the inner wall to the | 40. <i>Bilad</i> al-Mighaislah |
| 3. <i>Bilad</i> abd-al-Qadir | south of the Prophet | (Omar Zahid) |
| Khouj | mosque. | 41. <i>Bilad</i> al-Mighsalah |
| 4. <i>Bilad</i> Adielah** | 24. <i>Bilad</i> al-Hashimiah | (al-Hindi al-Maimani |
| (daughter of al-Sultan | (al-Saied Husain | abd-Allah Arab). |
| Mahmoud Khan) at | Hashim) close to | 42. <i>Bilad</i> al-Mishrifiah. |
| Bab al-Shami | hoash al-'Aabied. | 43. <i>Bilad</i> al-Muftiah. |
| 5. <i>Bilad</i> al-Àainiah. | 25. <i>Bilad</i> al-Hidhaziah.** | 44. <i>Bilad</i> al-Naqibiah. |
| 6. <i>Bilad</i> al-Abbariah. | 26. <i>Bilad</i> al-Husniah. | 45. <i>Bilad</i> al-Nuwai-amah. |
| 7. <i>Bilad</i> al-Ahmadiyah* | 27. <i>Bilad</i> Ali Agha | 46. <i>Bilad</i> al-Qaiem. |
| (al-Hajjar) | Farazani (jabal Sil'e). | 47. <i>Bilad</i> al-Qawiem. |
| 8. <i>Bilad</i> al-Ainiah**, the | 28. <i>Bilad</i> Ali Shokri. | 48. <i>Bilad</i> al-Qibrisliah. |
| largest bilad inside the | 29. <i>Bilad</i> al-Jiz'a. | 49. <i>Bilad</i> al-Qiritliah. |
| walled city. | 30. <i>Bilad</i> al-Joudiah | 50. <i>Bilad</i> al-Raffah. |
| 9. <i>Bilad</i> al-Anabis | 31. <i>Bilad</i> al-Katbiah* (al- | 51. <i>Bilad</i> al-Refaei (al- |
| 10. <i>Bilad</i> al-Barbouriah. | Shaikh al-Sanousi) | Saied al-Refaei). |
| 11. <i>Bilad</i> al-Burzanjiah. | 32. <i>Bilad</i> al-Khiari*, in | 52. <i>Bilad</i> al-Roumiah**. |
| 12. <i>Bilad</i> al-Busatiah. | zuqaq al-Sultan | 53. <i>Bilad</i> al-Sabiel (Sil'e). |
| 13. <i>Bilad</i> al-Bussah. | 33. <i>Bilad</i> al-Mabroukah | 54. <i>Bilad</i> al-Safiah* (al- |
| 14. <i>Bilad</i> al-Bwairah in | (al-Sheikh Ibrahiem | Sayied Safi). |
| Quba. | Mustrafa al-Turki) | 55. <i>Bilad</i> al-Saied Husain |
| 15. <i>Bilad</i> al-Darwishiah. | 34. <i>Bilad</i> al-Maimani | ba-Faqih al-'Aalawi, |
| 16. <i>Bilad</i> al-Dawoodiah. | (abd-Allah Arab al- | at the end of zuqaq al- |
| 17. <i>Bilad</i> al-Ehain al- | Maimani) south to al- | Tayyar. |
| Kabier (Ibrahiem | Suqia well | 56. <i>Bilad</i> al-Salmiah. |
| Shokri). | 35. <i>Bilad</i> al-Maqarmiah | 57. <i>Bilad</i> al-Samhoudi** |
| 18. <i>Bilad</i> al-Ehain al- | 36. <i>Bilad</i> al-Marhoum | in zuqaq al-Habs. |
| Saghier. | Dawood Basha (jabal | 58. <i>Bilad</i> al-Sammaniah. |
| 19. <i>Bilad</i> al-Fairouzhiah. | Sil'e) it contained one | 59. <i>Bilad</i> al-Shadaqah. |
| 20. <i>Bilad</i> al-Ghabah. | of the most beautiful | 60. <i>Bilad</i> al-Sharied. |
| 21. <i>Bilad</i> al-Hadiedah* | diwan and birkah. | 61. <i>Bilad</i> al-Sinaniah. |
| (Mohammed Ali | 37. <i>Bilad</i> al-Marrakshiah* | 62. <i>Bilad</i> Swalah. |
| Afandi). | (Mohammed Sa'eid | 63. <i>Bilad</i> al-Tahsieniah |
| 22. <i>Bilad</i> al-Hamamiah. | abd-al-'Aal | (Tahsien Agha al- |
| 23. <i>Bilad</i> al-Hammam al- | 38. <i>Bilad</i> al-Me'alim 'Ali | Qizlar) in Qurban |
| Juwani**. Hammam | Mishrif (al-banna' al- | area. |
| Nour-al-Dien al- | muhandis) | 64. <i>Bilad</i> al-Taranwiah. |

- | | | |
|--|---|---|
| 65. <i>Bilad al-thahabiah.</i> | 79. <i>Bilad hammam (bath) al-Manakhah.*</i> | 86. <i>Bilad Masier.</i> |
| 66. <i>Bilad Al-Traikiah.</i> | 80. <i>Bilad Ibraheim Awad Qadi, next to al-Anbariah Gate and the Military Qishlah.</i> | 87. <i>Bilad Misr.</i> |
| 67. <i>Bilad al-Tuaniah.</i> | 81. <i>Bilad in bait 'Eshqi Afandi.*</i> | 88. <i>Bilad Mohammed Badawi.</i> |
| 68. <i>Bilad al-Turjuman* on sail abi-Jiedah</i> | 82. <i>Bilad in bait al-qizlar* (Hafidh Bahram Agha).</i> | 89. <i>Bilad Mohammed Nafi'e Afandi al-Katib.</i> |
| 69. <i>Bilad Al-Usbah.</i> | 83. <i>Bilad in bait al-Saied Husain Hashim.**</i> | 90. <i>Bilad Murjan Agha Saliem.*</i> |
| 70. <i>Bilad al-Zahdiah.</i> | 84. <i>Bilad in bait Saied Safi.**</i> | 91. <i>Bilad Qawiem Barri.</i> |
| 71. <i>Bilad al-Zainiah</i> | 85. <i>Bilad in Dar al-Diafah** (the host house).</i> | 92. <i>Bilad um-al-Rakham (Yahya Dafterdar al-Khatieb).</i> |
| 72. <i>Bilad al-Zaki.</i> | | 93. <i>Bilad Woddy.</i> |
| 73. <i>Bilad be'r Aries.</i> | | 94. <i>Bilad Zamzam</i> |
| 74. <i>Bilad Bier Ha-a.</i> | | 95. <i>Bilad Husain ba-Faqih* in zuqaq al-Tayyar.</i> |
| 75. <i>Bilad Budai'aah.</i> | | |
| 76. <i>Bilad Diar al-'Aasharah**, south of the Prophet mosque.</i> | | |
| 77. <i>Bilad Erwah, around Erwah well.</i> | | |
| 78. <i>Bilad Erwah.</i> | | |

* bilad located within the external wall of the city.

** bilad located within the inner wall of the city.

12.2.3. Agricultural Glossary

1. *Akkar* or *fallah* or *mzarià*: farmer or gardener.
2. *Al-Janien*: is the harvesting operation of grains which involve social and cultural activities like *inshad*, *feasting*, *samar*, *mizmar*, etc.
3. *Aljidad*: is the harvesting operation of dates which involve social and cultural activities like *inshad*, *feasting*, *samar*, *mizmar*, etc.
4. *al-khaly* or *àushb* or *àabal*: green ground cover of herbaceous plants that grow naturally on edges of planting beds like weeds (they are not wild desert plants but exotic that come with seeds imported from abroad).
5. *Al-Majar*: a longitudinal space in which oxen move away from the well pulling the *risha-a* (well-rope) to lift the water and toward the well to descend the *dalou* (skin receptacle) down the well.
6. *Al-Qarn*: is a standing stone-columns (part of *al-saniah*), on both sides of the well, on which a wooden structure is fitted to descend the *dalou* to the well.
7. *Al-Quf*: a basin in which water pored from *al-dalou* (a receptacle made of skin descend in the well to collect water) will be collected before it would be channelled to the *birkah*.
8. *Al-Rasha-a*: a rope used in *al-saniah* knotted to the *dalou* to lift the water from the well.
9. *Al-Saniah*: a water lifting mill on wells and work by beasts.
10. *Al-wabar*: artificial pollination of palm trees.
11. *Baydar*: a large (enough for 47 *wasaq*¹) circular rug made of palm's leaves used to pile dates on in the market.
12. *Birkah*: a pond that take place in the *diwan*, used for irrigation, swimming, a prospect for the *diwan*, and alleviate day heat by the action of evaporation.
13. *Birzah*: a raised 30-50 cm high slab built of stone close to the *diwan* but away from palms, in an open area decorated by local scented herbs and other plants. Medina people of gardens used to sit in *birzah* at afternoon time to drink tea
14. *Bugàah*: the crop of any produces ready to be sent to the market in the early morning.
15. *Diwan*: an elevated and roofed pavilion (rectangular form) overlook water pond built in gardens and surrounded by palm trees.
16. *Gharb* or *dalou*: a receptacle made of skin (3-5) fitted on the *al-saniah* (water lifting machine) to lift water from wells.
17. *hashish* or *hashyim*: dry ground cover of herbaceous plants that grow naturally.
18. *hawdh* or *sharbat* or *sharab* (plural of *sharbah*): planting beds of palm trees built as part of the irrigation system that divide the garden into squares centered by palms and connected by water-feeding canals called *qanat'ir* (plural of *qant'arah*).
19. *Hudoud*: or *àuqoum* plurel of *àaqum* (earth mounds) used as limits or boundaries of properties for gardens.
20. *Jaryin*: a compartment in which dates are dispersed to dry out.
21. *Kala-a*: ground cover of wild herbaceous plants that grow naturally in the desert and cattle feed on (whether dry or green).
22. *khasafah* or *hasirah* or *al-khamrah*: a rug made out of palm's leaves.
23. *maffattah* or *simat'*: a circular rug used to place dates.
24. *maktal* or *quffah* or *zanbyil* or *safyifah* or *airq*: basket or carrier made of palm's leaves.

¹Wasaq is 60 *saà*, which corresponds to 2.5kgm.

25. *mazianat*: plants that grow naturally on irrigation canals.
26. *mikhṣarah*: crutch or walking stick.
27. *Mirbad*: a wet-proof storage where dates can be collected and stored.
28. *Mirwahah khasaf*: a traditional fan made out of palm's leaves.
29. *Muknasah khasaf*: a broom made out of palm's leaves.
30. *naqyir*: the hollowed piece of palm's trunk used as a container for dates and grains.
31. *Nuzul*: is farm residence usually attached to diwans in Medina gardens.
32. *qana'ir* or *sawaqi* or *masayil*: irrigation canals which were built of earth perms in a particular framework to irrigate planting beds.
33. *Yihit al-nakhil*: the busur scrape off its clusters, (a disease people of Medina used to consider as a sign of vain skills).

12.2.4. *Màalimien al-filahah* (chief farmers) during the late 19th until late 20th century.

1. Abd-al-Hamid Abbas.
2. Bin Msallam.
3. Husain al-Ghurri.
4. Husain selaihim.
5. Salih al-Gadi.
6. Salih al-Maiman.
7. Salih Shaqlibha, sheikh al-fallahyin.
8. Salim Abu-Aifah.

12.2.5. Names of some well known *ahwash* (plural of *housh*, courtyard) in Medina:

- | | | |
|---|--------------------------------|--|
| 1. <i>Housh</i> 'Amierah (150 house). | 31. <i>Housh</i> Ali Khidrah. | 60. <i>Housh</i> al-Ra'ei (200 or 1-2 floors house). |
| 2. <i>Housh</i> abid. | 32. <i>Housh</i> al-Jabart. | 61. <i>Housh</i> al-Rajawzah. |
| 3. <i>Housh</i> abu-Dra'a. | 33. <i>Housh</i> al-Jadied. | 62. <i>Housh</i> al-Ramad. |
| 4. <i>Housh</i> abu-Janb (40 three floors houses). | 34. <i>Housh</i> al-Jarbi. | 63. <i>Housh</i> al-Rashidi. |
| 5. <i>Housh</i> abu-Janb. | 35. <i>Housh</i> al-Jmal. | 64. <i>Housh</i> al-Saaidah. |
| 6. <i>Housh</i> abu-Shoushah. | 36. <i>Housh</i> al-Jouhari. | 65. <i>Housh</i> al-Saeidiah. |
| 7. <i>Housh</i> Agha al-Mustaslim. | 37. <i>Housh</i> al-Katbiah. | 66. <i>Housh</i> al-Sahrief. |
| 8. <i>Housh</i> Ahmed Agha (60 house). | 38. <i>Housh</i> al-Khazindar. | 67. <i>Housh</i> al-Saied. |
| 9. <i>Housh</i> al-Aabied, li-Al al-Khiari. | 39. <i>Housh</i> al-Khiari. | 68. <i>Housh</i> al-Samman. |
| 10. <i>Housh</i> al-Agha. | 40. <i>Housh</i> al-Khmarah. | 69. <i>Housh</i> al-Sharief. |
| 11. <i>Housh</i> al-Ainiah. | 41. <i>Housh</i> al-Likaie. | 70. <i>Housh</i> al-Shukriah. |
| 12. <i>Housh</i> al-Ansariah. | 42. <i>Housh</i> al-Magharbah. | 71. <i>Housh</i> al-Sidiqi. |
| 13. <i>Housh</i> al-Ariediah. | 43. <i>Housh</i> al-Maghrabi. | 72. <i>Housh</i> al-Tahouri. |
| 14. <i>Housh</i> al-Ashraf. | 44. <i>Housh</i> al-Mahali. | 73. <i>Housh</i> al-Takarnah. |
| 15. <i>Housh</i> al-Ashraf. | 45. <i>Housh</i> al-Mahmoudia. | 74. <i>Housh</i> al-Tunisi. |
| 16. <i>Housh</i> al-Azizi. | 46. <i>Housh</i> al-Malki. | 75. <i>Housh</i> al-Turjuman. |
| 17. <i>Housh</i> al-Barakati. | 47. <i>Housh</i> al-Mamarjiah. | 76. <i>Housh</i> al-Turki. |
| 18. <i>Housh</i> al-Bari. | 48. <i>Housh</i> al-Marzouqi. | 77. <i>Housh</i> al-Wanzi. |
| 19. <i>Housh</i> al-Basha. | 49. <i>Housh</i> al-Masiouf. | 78. <i>Housh</i> al-Waqf. |
| 20. <i>Housh</i> al-Bastaji. | 50. <i>Housh</i> al-Mihdar. | 79. <i>Housh</i> al-Zaiali'a. |
| 21. <i>Housh</i> al-Dhawafir (60 one floor houses). | 51. <i>Housh</i> al-Naimi. | 80. <i>Housh</i> Aounah. |
| 22. <i>Housh</i> al-Eraidah. | 52. <i>Housh</i> al-Nair. | 81. <i>Housh</i> Aqiel. |
| 23. <i>Housh</i> al-Etaifi. | 53. <i>Housh</i> al-Nakhawlah. | 82. <i>Housh</i> Babain. |
| 24. <i>Housh</i> al-Faqieh. | 54. <i>Housh</i> al-Nashwani. | 83. <i>Housh</i> Budaah. |
| 25. <i>Housh</i> al-Gaiah. | 55. <i>Housh</i> al-Neaimi. | 84. <i>Housh</i> Bwairah. |
| 26. <i>Housh</i> al-Gharbi. | 56. <i>Housh</i> al-Nourah. | 85. <i>Housh</i> Daraj. |
| 27. <i>Housh</i> al-Hammal. | 57. <i>Housh</i> al-Qaied. | 86. <i>Housh</i> Doulat. |
| 28. <i>Housh</i> al-Hamzawi. | 58. <i>Housh</i> al-Qshash. | 87. <i>Housh</i> Emairah. |
| 29. <i>Housh</i> al-Harmi. | 59. <i>Housh</i> al-Qushashi. | 88. <i>Housh</i> Fawwaz. |
| 30. <i>Housh</i> al-Hindi. | | 89. <i>Housh</i> Hatiem. |
| | | 90. <i>Housh</i> Hidjazi. |
| | | 91. <i>Housh</i> Khair Allah. |
| | | 92. <i>Housh</i> Khamies. |

- | | | |
|----------------------------|-----------------------------|---------------------------------------|
| 93. <i>Housh</i> Mahmoud. | 102. <i>Housh</i> Qadri. | 111. <i>Housh</i> Sharqan. |
| 94. <i>Housh</i> Maikah. | 103. <i>Housh</i> Qamar. | 112. <i>Housh</i> Siekah (50 houses). |
| 95. <i>Housh</i> Manna'a. | 104. <i>Housh</i> Qurbash. | 113. <i>Housh</i> Sinan (50 houses). |
| 96. <i>Housh</i> Mansour. | 105. <i>Housh</i> Riehan. | 114. <i>Housh</i> Sukkar. |
| 97. <i>Housh</i> Marimah. | 106. <i>Housh</i> Salman. | 115. <i>Housh</i> Swaid. |
| 98. <i>Housh</i> Marmah. | 107. <i>Housh</i> Sarqan. | 116. <i>Housh</i> Toto. |
| 99. <i>Housh</i> Marzouq. | 108. <i>Housh</i> Shaban. | 117. <i>Housh</i> Wardah. |
| 100. <i>Housh</i> Masaoud. | 109. <i>Housh</i> Shahien. | |
| 101. <i>Housh</i> Murjan. | 110. <i>Housh</i> Shalbiah. | |

12.2.6. *Azziqah* (plural of *zuqaq*, alleys).

- | | | |
|--|--|------------------------------------|
| 1. <i>Zuqaq</i> Al-Qafa. | Madh'har al-Naqshabandi. | 29. <i>Zuqaq</i> darb-al-Jenaiez. |
| 2. <i>Zuqaq</i> 'Aanbar Agha. | 14. <i>Zuqaq</i> al-Mudiriah. | 30. <i>Zuqaq</i> hoash al-Barri. |
| 3. <i>Zuqaq</i> al-'Einiyah. | 15. <i>Zuqaq</i> al-Nakhawlah. | 31. <i>Zuqaq</i> hoash al-Jabart. |
| 4. <i>Zuqaq</i> al-'Enayah. | 16. <i>Zuqaq</i> al-Qushashi. | 32. <i>Zuqaq</i> hoash al-Jamali. |
| 5. <i>Zuqaq</i> al-Budour. | 17. <i>Zuqaq</i> al-Rustumiah. | 33. <i>Zuqaq</i> hoash Fawaz. |
| 6. <i>Zuqaq</i> al-Dar al-Baida'a. | 18. <i>Zuqaq</i> al-Sandal. | 34. <i>Zuqaq</i> Ja'afar. |
| 7. <i>Zuqaq</i> al-Habs. | 19. <i>Zuqaq</i> al-Shajariah. | 35. <i>Zuqaq</i> Jafar. |
| 8. <i>Zuqaq</i> al-Hamatah or in the past al-Hmehnatah. | 20. <i>Zuqaq</i> al-Shirk. | 36. <i>Zuqaq</i> Kibriet. |
| 9. <i>Zuqaq</i> al-Hamzawi or <i>zuqaq</i> al-Khaiatien. | 21. <i>Zuqaq</i> al-Shounah. | 37. <i>Zuqaq</i> Koumat Hashifah. |
| 10. <i>Zuqaq</i> al-Hanablah. | 22. <i>Zuqaq</i> al-Sultan. | 38. <i>Zuqaq</i> Saqifat al-Amier. |
| 11. <i>Zuqaq</i> al-Katbiah. | 23. <i>Zuqaq</i> al-Tayyar. | 39. <i>Zuqaq</i> saqifat al-Amier. |
| 12. <i>Zuqaq</i> al-Madarsi. | 24. <i>Zuqaq</i> al-Twal. | 40. <i>Zuqaq</i> Shaqrah. |
| 13. <i>Zuqaq</i> al-Mawalied or <i>zuqaq rubat</i> al-shiekh | 25. <i>Zuqaq</i> al-Wakalah or al-Dawoodiah. | 41. <i>Zuqaq</i> Zakkat al-Jiwar. |
| | 26. <i>Zuqaq</i> al-Zarandi. | |
| | 27. <i>Zuqaq</i> Aniqni. | |
| | 28. <i>Zuqaq</i> Bab al-Rahmah. | |

12.2.7. *Al-Saqiaief* (plural of *Saqifah*, roofed alley by part of a house).

1. *Saqiefat* abd-al-Qadir.
2. *Saqifat* al-Amier.
3. *saqifat* al-Rasas.
4. *Saqifat* Nazier.
5. *Saqifat* Shaikhi.

12.2.8. *Al-Hammamat* (plural of *Hammam*, Turkish Bath)

1. *Hammam* al-Madinah.
2. *Hammam* al-Manakhah (Ahmed Nadhief Afandi al-Turjuman) in a Hadiqah.
3. *Hammam* Nour-al-Dien al-Sharief, located within the inner wall to the south of the Prophet mosque.
4. *Hammam* 'aibah.

12.2.9. *Al-Madaris* (plural of *Madrasah*, school):

1. Al-Madrasah al-Hamiediah in al-Sahah district
2. Al-Madrasah al-Mahmoudiah, attached to bab-al-Salam. It contained a small garden inside its court.
3. Madrasat al-Azbak.
4. Madrasat al-Khaskiah (*al-marhoumah*² Khaski Sultan), it contained a small garden in addition to a small mosque.
5. Madrasat al-Kuttab.
6. Madrasat *al-marhoum* Bashier Agha, between *zuqaq* al-Khayatien and bab-al-Salam.
7. Madrasat al-Rustumiah.
8. Madrasat al-Saqzali.
9. Madrasat al-Shaikh Madhehar.

² Al-marhoum for males and al-marhoumah for females is a title (adjective) given to deceased people means (Allah may bestow His mercy upon the deceased person).

10. Madrasat Husain Afandi.
11. Madrasat Kuli-Nadhiri.
12. Madrasat Mustafa Afandi Arnout.
13. Madrasat Qurrah Basha.
14. Madrasat Tharwat Afandi.

12.2.10. *Sail* (wadi course or waterway).

- | | | |
|---------------------|---------------------|-------------------|
| 1. Sail abu-Jiedah. | 4. Sail al-Ranoona. | 7. Sail Hammad. |
| 2. Sail al-Aqoul. | 5. Sail Bathan. | 8. Sail Qanah. |
| 3. Sail al-Aqiq | 6. Sail Erwah. | 9. Sail Shaibiah. |

12.2.11. *Kubri* (bridge).

1. *Kubri al-marhoum* Sinan Basha³ was on *sail* (valley course) abu-Jiedah to the north of Quba Gate from inner side. The bridge was built out of black granite stones on a *qantarrah* (water way) of the same material.
2. *Kubri al-'Aqiq*, erected over wadi al-'Aqiq for the rail road during the Ottoman time in Hidjaz.

12.2.12. *al-Àioün* (streams)

- | | | |
|----------------------------------|------------------------------------|---------------------------------|
| 1. <i>Àin</i> Abi-Ziad. | 10. <i>Àin</i> al-Manakhah | 18. <i>Àin</i> al-Zaki |
| 2. <i>Àin</i> Al-Ewainah. | 11. <i>Àin</i> Al-Nabi. | 19. <i>Àin</i> al-Zargah. |
| 3. <i>Àin</i> al-Fuqarah | 12. <i>Àin</i> al-Sarrani, close | 20. <i>Àin</i> bab-al-Salam |
| 4. <i>Àin</i> Al-Ghawra. | to Jabal 'Eir | 21. <i>Àin</i> Bani. |
| 5. <i>Àin</i> al-Ghrabiah or al- | 13. <i>Àin</i> Al-Sarrani. | 22. <i>Àin</i> Fatimah. |
| Hananiah | 14. <i>Àin</i> al-Sarraniah in the | 23. <i>Àin</i> Kahf bani-Haram. |
| 6. <i>Àin</i> Al-Hadied. | east side of the city | 24. <i>Àin</i> Marwan. |
| 7. <i>Àin</i> Al-Hufaiah. | 15. <i>Àin</i> Al-Shuhada. | 25. <i>Àin</i> Mousa. |
| 8. <i>Àin</i> Al-Khaif. | 16. <i>Àin</i> Al-Sourain. | 26. <i>Àin</i> Tuhani. |
| 9. <i>Àin</i> Al-Malhah. | 17. <i>Àin</i> Al-Yusra. | |

12.2.13. *al-Khiouf* (plural of *khaif*, manmade underground-streams).

- | | | |
|-------------------------------|---------------------------------|------------------------------------|
| 1. <i>Khaif</i> Al-Aameriah. | 13. <i>Khaif</i> Al-Hisainiah. | 25. <i>Khaif</i> Al-Salamah or al- |
| 2. <i>Khaif</i> Al-Abbasiah. | 14. <i>Khaif</i> al-Madinah. | Muftiah. |
| 3. <i>Khaif</i> Al-Aghawat. | 15. <i>Khaif</i> Al-Maneiah. | 26. <i>Khaif</i> Al-Sarraniah. |
| 4. <i>Khaif</i> Al-Baq. | 16. <i>Khaif</i> Al-Maqbouliah. | 27. <i>Khaif</i> Al-Sharioufi. |
| 5. <i>Khaif</i> Al-Barakah. | 17. <i>Khaif</i> Al-Masraa. | 28. <i>Khaif</i> Al-Shnaiblich. |
| 6. <i>Khaif</i> Al-Dhahiriah. | 18. <i>Khaif</i> Al-Mdafeiah. | 29. <i>Khaif</i> Al-Siraihih. |
| 7. <i>Khaif</i> Al-Fuqarah. | 19. <i>Khaif</i> Al-Najiliah. | 30. <i>Khaif</i> Al-Taiariah. |
| 8. <i>Khaif</i> Al-Ghrabiah. | 20. <i>Khaif</i> Al-Rayyan. | 31. <i>Khaif</i> Al-Thanaiah. |
| 9. <i>Khaif</i> Al-Haidariah. | 21. <i>Khaif</i> Al-Sadaqah. | 32. <i>Khaif</i> Al-Zuhrah. |
| 10. <i>Khaif</i> Al-Harisiah. | 22. <i>Khaif</i> Al-Sadqiah. | 33. <i>Khaif</i> Jamal al-Lail. |
| 11. <i>Khaif</i> Al-Hawazim. | 23. <i>Khaif</i> Al-Saied. | 34. <i>Khaif</i> Um-al-Baidh. |
| 12. <i>Khaif</i> Al-Hazmiah. | 24. <i>Khaif</i> Al-Sakraniah. | 35. <i>Khaif</i> Um-Sdairah. |

12.2.14. *Abar* (plural of *Biër*, well).

- | | | |
|-----------------------------|--------------------------------|---------------------------|
| 1. <i>Biër</i> Adhaq. | 8. <i>Biër</i> al-Ghurbal. | 14. <i>Biër</i> Bussah. |
| 2. <i>Biër</i> al-Ain. | 9. <i>Biër</i> al-Khatam or | 15. <i>Biër</i> Eirwah. |
| 3. <i>Biër</i> al-Aini. | Aries or al-Nabi. | 16. <i>Biër</i> Ghars. |
| 4. <i>Biër</i> al-Auqad. | 10. <i>Biër</i> al-Shallalain. | 17. <i>Biër</i> Haa. |
| 5. <i>Biër</i> al-Bidaa. | 11. <i>Biër</i> al-Suqia. | 18. <i>Biër</i> Jedailah. |
| 6. <i>Biër</i> al-Buwairah. | 12. <i>Biër</i> Aries. | 19. <i>Biër</i> Othman |
| 7. <i>Biër</i> al-Ehn. | 13. <i>Biër</i> Buda-ah. | (Roumah). |

³ A title given to the elite of the society usually chosen by the governor (delivered to Medina from Ottoman culture).

12.2.15. *Sabiel* (endowment of drinking water).

1. *Sabiel* 'Adielah (daughter of al-Sultan Mahmoud Khan) at Bab al-Shami.
2. *Sabiel* Ahmed bik Miralai on al-'Aanbariah street.
3. *Sabiel* al-Khalifati.
4. *Sabiel al-marhoum* Nour-al-Dien al-Shahied.
5. *Sabiel* al-Qaied, in 'Erwah.
6. *Sabiel* al-Saied Ja'afar al-Katib.
7. *Sabiel* al-Saiedah Fatimah.
8. *Sabiel* al-Sarailiah.
9. *Sabiel* al-Shaqdami at the agency of al-Sharief al-Shadqami bin Shaien Wahid.
10. *Sabiel* bab-al-Jum'aah.
11. *Sabiel* bab-al-Masri.
12. *Sabiel* bab-al-Rahmah.
13. *Sabiel* bab-al-Saghier.
14. *Sabiel* bab-al-Salam.
15. *Sabiel* bait al-Burhan.
16. *Sabiel* Bait al-Khalifati.
17. *Sabiel* Diar al-'Aashrah.
18. *Sabiel* Nour-al-Dien al-Shahied.
19. *Sabiel* Ribat al-'Aajam (Nour-al-Dien al-Shahied).
20. *Sabiel* Saliem bik al-Mayenji, at al-Musala mosque.
21. *Sabiel* Saliem bik Zaqaq, close to al-Dawodiah.
22. *Sabiel* Sinan Basha.
23. *Sabiel* Sultan (jabal Sil'e).
24. *Sabiel* Zawiat al-Samman.

12.2.16. *Al-aswaq* (plural of *souq*, market) in Medina.

1. *Souq* al-Aiashshah.
2. *Souq* al-Ainieah.
3. *Souq* al-Habbabbah.
4. *Souq* al-Khaiattah.
5. *Souq* al-Qaffassah.
6. *Souq* al-Qammashah.
7. *Souq* al-Sbaghah.
8. *Souq* al-Souq al-Saghah.
9. *Souq* al-Tammarrah.
10. *Souq* al-Tbakhah.



13 References.

Attitudes towards designed landscapes in two desert cities: Medina, Saudi Arabia and Tucson, Arizona.

13. References:

1. Abbey, Rita Deanin and G. William Fiero. 1986. Art and Geology: Expressive Aspects of the Desert. Salt Lake City: Gibbs M. Smith, INC.
2. Abbey, Edward. 1990. Desert Solitaire: a Season in the Wilderness. New York: Touchstone.
3. Abd-al-Baqi, Mohammed Fuaad, ed. Not dated. Sunan Ibn-Madjah. (the collection of Hadith of ibn-Madjah. Beirut: al-Maktabah al-'Elmalia.
4. Abd-al-Khaliq, Abdul-Rahman. (1997) second edition. Al-Sirat: Usoul Manhaj ahl al-Sunnah wa al-Jama'ah fi al-E'atiqad wa al-'Amal. (The straight path: the pillars of Sunni's belief and deeds). Kuwait: Dar al-Tajdid.
5. Abi-Shaibah, A. 1981. Al-kitab al-Musanaf fi al-Ahadith wa al-Athar. (The categorised book in sayings and vestiges). Vol. 10. Edited by al-Nadawi, M. A. Riyadh: al-Dar al-Salafiah.
6. Abu-Dawood, Sulaiman bin-al-Ash'aath. Not dated. Sunan abi-Dawood. [The citation of the Prophetic Sunnah by abu-Dawood]. Compiled by Mohammed Muhiyi-al-Dein. Dar Ehia al-Sunnah al-Nabawiah.
7. Abu-Zaid, Abd-Allah. 1990. Al-Ta'alum wa Atharuh A'la al-Fikr wa al-Kitab. [Influence of argued knowledge on thoughts and writing].
8. Abuzinada, A. H., Grainger, J., and Child, G. 1991. Planning a System of Protected Areas in Saudi Arabia. Parks, 2 (2) : 12-17.
9. Adam, Peter. Not dated. Islam: Search for Identity (Architecture at the Crossroad). 50 min. Videocassette.
10. Adams Robert, Adams Marina, Willens Alan, and Willens, Ann. 1987. Dry Landscape: Man and Plants. London: the Architectural Press.
11. Agwan, A. R. 1993. Towards an ecological consciousness. The American Journal of Islamic Social Science, 10 (2) : 238-48.
12. Ainsworth, Ed. 1960. Painters of the Desert. Palm Desert: Desert Magazine.
13. Al-abdul-Latief, Abdul-Aziz M. 1993. Abhath fi al-Ei'atiqad. (Researches in the Islamic paradigm). London: Dar al-Eifta
14. Al-Alousi, Mahmoud Shukri. Not dated. Rouh al-ma'aani fi tafsier al-Quran wa al-sab'a al-mathani. [Spirit of the meanings of the exegesis of the sovereign Quran and the seven oft-repeated verses]. Beirut: Dar Ehia-a al-Turath.
15. Al-Ashqar, Omar Sulaiman. 1993. Al-Asma wa al-Sifat fi Muataqad Ahl al-Sunnah wa al-Jama'aah. [the Names and Attributes from the Islamic sunni doctrine]. Amman: Dar al-Nafaeis.
16. Al-Bandari, Abd-al-Ghaffar and Kasrawi, Saied, eds. 1991. Sunan al-Nasaei. [the collection of Hdith of al-Nasaei]. Beirut: Dar-al-Kutub al-Elmiah.
17. Al-Baze'ei, Saad Abd-al-Rahman. 1991. Thaqafat al-Sahra: Dirasat fi Adab al-Jazirah al-Arabiah al-Muasir. [Culture of desert: studies in the contemporary literature of the Arabian Peninsula]. Riyadh: al-Ebaikan.
18. Al-Blaihi, Ibraheim. 1995. Buniat al-Takhaluf. [Foundational base of backwardness]. Riyadh: al-Yamamah.
19. Al-Bukhari abi-Abdullah. Not dated. Sahih al-Bukhari: the English translation of the Prophetic Sayings narrated by al-Imam al-Bukhari in his 'the Correct Citation.' Vol. 3. Translated by Khan, Mohammed M. Medina: al-Maktabah al-Salaffiah.
20. Al-Bukhari, Mohammed bin-Isma'eiel. (1991). Sahih al-Bukhari. [The correct citation of al-Bukhari for the Prophetic Hadith]. Beirut: Dar-al-Fikr.
21. Al-Da'aas, Ezzat and al-Saied, Adil, eds. 1968. Sunan abi-Dawood. [the collection of Hadith of abi-Eawood]. Beirut: Dar al-Kutub al-Elmiah.
22. Al-Dimashqi, Ali bin-Ali. 1280. Sharh al-Aqidah al-Tahawia. [The interpretation of

- al-Tahawia belief]. Vol. 1. Compiled by al-Turki A. Abdulmihsim and al-Arnaout Shu'aib. 1987. Beirut: al-Risallah.
23. Al-Emadi, abu-al-Su'aoud M. Ershad al-Aql al-Saliem ela Mazaia al-Kitab al-Kariem. [Advising the intact intellect to the characteristics of the bountiful Book].
 24. al-Enizi, Hamid. 1998. Interview by author, 25 June, Medina. Bilad al-Enizi, Medina.
 25. Al-Ethaimien, Mohammed S. 1992. Al-Qwaeid al-Muthla fi Sifat Allah wa Asma-ehi al-Husna. (The ideal understanding of Allah's fine names and attributes). London: Dar al-Efta.
 26. Al-Fahham, Ibrahim Mohammed. 1978. Al-Arab wa al-saif. [Arabs and summer]. Al-Arabi, July, 141-48.
 27. al-Fairouz-Abady, M. ibn abd-Allah. 1978. al-Qamous al-Muhiet (The comprehensive dictionary). Beirut: Dar al-Fikr.
 28. Al-Faruqi, Lois Lamia. 1984. Afanun Islami am fanu Muslimien? [Is it Islamic art or Muslims' art?]. Al-Manhal, 46 (Shaban-Ramadan) : 332-347.
 29. al-Ghamdi, A. 1997. Al-nienaa al-madani yaftah abwab aukhra. [Mint of Medina opens new gates]. al-Riyadh, 27 March, 25.
 30. al-Hafiz, B. A. 1992. Islam and ecology. In Islam and Ecology, ed. Fazlun M. K. And Joanne, O., 1-24. London : Cassell.
 31. Al-Hakiem, Sulaiman. 1984. Tathier al-Islam fi al-fan al-'Arabi. [Influence of Islam on the Arabic art]. Al-Manhal, 46 (Shaban-Ramadan) : 22-27.
 32. Al-Hamawi, Shihab-al-Dien Yaqout. 1977. Mu'adjam al-buldan. [Lexicon of Countries]. Beirut: Dar Sadir.
 33. Al-Hasan, Abdullah. 1992. Ummah or Nation: Identity Crisis in Contemporary Muslim Society. Broughton Gifford: Cromwell Press.
 34. Al-Hathloul, S. A. 1991. Al-Umarah bain al-turath wa al-muaasarah. [Architecture between traditionality and contemporality]. Albaladiyat, Oct-Dec, 17-20.
 35. al-Hathloul, S. A. 1981. Cultural conflicts in urban patterns: a Saudi Arabian case study. in Serageldin, I., El-Sadek, S. (eds), The Arab city: its character and Islamic cultural heritage, Medina: The Saudi Arabian Ministry of Municipal and Ruaral Affairs, Medina, 71-77.
 36. Al-Humoud, Mohammed bin-Hamad. 1987. Al-Nahj al-Asma fi Sharh Asma Allah al-Husna. (The sublime methodology in the exegete of the Beautiful Divine Names). Kuwait: Dar al-Siasah.
 37. Al-Husary, Adieb. 1981. Al-filaha al-madaniah. [Medina style of farming].
 38. Al-Hussayen, Mohammad. 1992. Characteristics of al-Ahwash (courtyards) Urban Pattern in al-Madinah al-Munawarah. Riyadh: King Saud Press.
 39. Ali, abd-Allah Yousuf. 1938. The Meanings of the Glorious Quran. Cairo: Dar al-Kitab al-Misri.
 40. Ali, Asim Hamdan. 1999. Mashahid min 'A-anbariat al-Madinah al-Munawarrah. [Scenes of 'A-anbariah of Medina]. Ahlan Wasahlan, January, 46-46.
 41. Al-Jadirji, Raf'aat. 1999. Mudununa al-hadithah ta'eish fawda mi'emariah. [Our modern cities experience architectural chaos]. Alsharq Alawsat, 9 December, 18.
 42. al-Jama'ah al-Eslamiah. 1988. Tamam al-Minah fi al-Rad 'ala A'ada al-Sunnah. [the complete response to the refusers of the Prophetic path]. Kuwait: al-Dar al-Salafiah.
 43. Al-Jawziah, Shamsuldien Mohammed (a). (1248-1308). Al-Fawaeid. (The welfare). Compiled by al-Khasht, Mohammed Othman. (1996). Beirut: Dar al-Kitab al-Arabi.
 44. Al-Jawziah, Shamsuldien Mohammed (b). (1248-1308). Rawdatu al-Muhibien wa Nuzhat al-Mushtaq. (Paradise of lovers and promenade of eager). Edited by al-Jumaili, al-Saied. Beirut: Dar al-Kitab al-Arabi.
 45. Al-Jowhari, E. H. Al-Sihah: Taj Allughah wa Sihah al-Arabiah. (The crown of correct

- Arabic language). Vol. 3. Edited by Attar, A. A. (1984). Beirut: Dar al-Elm Lil-Malaien, third edition.
46. Al-Jurfi, Mohammed. 1999. Interview by author, Summer, Medina. Written manuscript.
 47. Al-Khazraji, abd-Allah Faraj. 1991. Al-Madinah al-Muhawarah: Adataha wa Taqalidaha Mundhu 'Aam 925 wa hatta 1409H. [Medina: traditions and customs between 925-1409 AH]. Jeddah: Tuhamah Publications.
 48. Allen, Mark. 1980. Falconry in Arabia. London: Orbis Publishing.
 49. Al-Lwati, Ali. 1984. Khawatir jamliah lilturath al-Islami. [Aesthetic characteristics for Islamic traditions of art]. Al-Manhal, 46 (Shaban-Ramadan) : 28-37.
 50. Al-Madani, Mohammed Kibrit al-Husaini. 1650. Al-Jawahir al-Thamiena fi Mahasin al-Madinah. [The precious diamonds of Medina's virtues]. Compiled by Selem, Ahmed. S. 1997.
 51. Al-Majjallah. 1999. Tahkik musawar: nisa al-Tawarik. [Photographed investigation: women of Tuareg]. Al-Majalla (October 24-30) : 64-67.
 52. Al-Mat'aani, abd-al-'Aadhiem. 1986. Al-Islam fi Muwajahat al-Aidolowgiat al-Mu'aasirah. (Islam in-confront of contemporary ideologies). Cairo: al-Sa'aadah.
 53. Al-Mawaldi, Musatafa. 1995. Fan al-tansieq al-hadaeqi eind al-Arab. [Arabian art of garden design]. In The fifth international symposium for the history of Arabic science held in the University of Granda between 30-4 March-April 1992, edited by Musatafa Al-Mawaldi, 310-355. Aleppo (Siyria): Aleppo University Publications.
 54. Al-Misbahi, Hassonah. 1998. Al-rihlah al-aowrobiah al-aowla ela al-Yaman al-saeid. (the first European expedition to Yeman). Asharq Al-Awsat, 4, 5 October 15.
 55. Al-Muqtataf (a). 1919. Hasat al-Jamal fi al-Nesa'. [Sense of beauty in women]. Al-Muqtataf, 1 May, 494-497.
 56. Al-Muqtataf (b). 1919. Dhawq al-Jamal. [Taste of aesthetic]. Al-Muqtataf, 1 May, 509-511.
 57. Al-Muqtataf. 1881. Falsafat al-Jamal. [Philosophy of beauty]. Al-Muqtataf. 1 June, 321-324.
 58. Al-Muqtataf. 1921. Falsafat al-Jamal. [Philosophy of beauty]. Al-Muqtataf. 1 January, 1-7.
 59. Al-Naisabouri, abi-Mansour al-Tha'a-alibi. 1907. Hikam al-Arab. (Proverbs of Arabs). Al-Muqtataf. March, 222-224.
 60. al-Nasan, Mohammed Hisham. 1992. Fan al-Tansieq al-Hadaeqi eind al-Arab. [The art of Arabian garden design]. In Tariekh al-aloum ind al-Arab. [History of Arabian science] : Abhath al-nadwah al-alamiah al-khamisah, [Proceeding of the fifth international symposium] in University of Granada, Spain, March-April 30-4, 1992, by Ma'ahad al-Turath al-Elmi al-Arabi (Institute for the History of Arabic Science). Aleppo: Aleppo University Publications, 311-355.
 61. al-Naser, Y. 1995. Al-Haj qabl meat Sanah min khilal mushahadat rihlat serraiah li-Dhabit rosi ila Makkah al-Mukarramah. [Pilgrimage before one hundred year through personal observations of a russian constable's secrete trip to meccah]. al-Hayat, 5 May, 21.
 62. al-Nashar, Abd-al-Wahhab. 1921. Mata Nanhad. [When it is due for revival]. In Adab al-Hidjaz. (literature in Hidjaz), ed. al-Sabban, Mohammed s. Jeddah: al-Sabban.
 63. Al-Nasir, abd-Allah M. 1999. Ashbah al-Sarab. [Goasts of the mirage]. London: Dar al-Saqi.
 64. Al-Nawawi, Yahia bin-Sharaf-al-Dien. Not dated. Sahih Moslim bi-sharh al-Nawawi. [Al-Nawawi's elaboration of Moslim's correct citation of the Prophetic Hadith]. Beirut: Dar al-Kutub al-'Eilmiah.

65. Al-Qaffash, Usama. 1996. Mafahiem al-Jamal: ruaia Islamiah. [Concepts of Aesthetic: an Islamic view]. Cairo: al-Ma'ahad al-'Aalami lil-Fikr al-Islami.
66. Al-Qattan, Manna'a. 1983 third edition. Mabahith fi 'aaluom al-Quran. [Researches in the Sciences of Quran]. Beirut: al-Risalah.
67. Al-Qurtubi, abu-abd-Allah M. (1960). Al-Jamie li-Ahkam al-Quran wa al-Mubaien lima Tadamanahu min al-Sanad wa Ahkam al-Furqan. [The aggregating of the laws of Quran and the determining of its implicit referential legislatures of the scriptural criterion]. Edited by Ibraheim Itfaish. Cairo: Ministry of Culture.
68. Al-Razi, Fakhr-al-Dein. Not dated. Al-Tafsier al-Kabier lil-Razi. [The complete exegesis of al-Razi].
69. Al-Razi, M. A. 1985. Mukhtar al-Sihah. [The selected correct language]. Beirut: Dae'rat al-Majim.
70. al-Sabban, Mohammed S. 1921. Al-Ma'arad. [The exhibition]. Jeddah: al-Sabban.
71. al-Sabban, Mohammed S. 1921. La Eslah ma'a al-Reiaa. [No emendation possible with hypocrisy]. In Adab al-Hidjaz. [literature in Hidjaz], ed. al-Sabban, Mohammed s. Jeddah: al-Sabban.
72. Al-Safi, Othman abd-al-Qadir. 1993. Aslamat al-äulüm al-einsaniah. [Islamisation of humanistic sciences]. Beirut: dar-al-Kitab al-Äarabi.
73. Al-Salman, abd-al-Aziz Mohammed. 1993. Al-Ayat al-Sate'aat li-Ayat Jame'aat. (The illuminating signs of the universal versres). Riyadh: al-Esh'aa'a.
74. Al-Samhudi. 1981. Wafa al-Wafa. [Loyalty of the loyalty]. Beirut: Dar Ihya al-Turath.
75. Al-Samhoudi. 1945. Kulasat al-Wafa bi-Akhbar Dar al-Mustafa. [Summery of al-wafa in the news of the abode of the Prophet al-Mustafa]. Cairo: Dar Ehia al-Turath.
76. al-Saudioun yarmoun fi al-nefaiat alf ton min al-waraq sanawian. [Saudis dump a thousand ton of paper annually]. Asharq al-Awsat, 6 November 1998, 2 (front page).
77. Al-Seiouti, J. Not dated. Al-Quran al-Shefi: Khawas al-Quran al-Kariem al-Wiqaeiah wa al-Elajeiah min Sunat Khair al-Mursalein wa Tajarib al-Salihein. [The healing Quran: the shielding and treating characteristics of the holy Quran, the Prophetic traditions, and the auditions of the scholars]. Compiled by Saliem, M. E. 1988. Cairo: Maktabat al-Quran.
78. Al-Shahrani, Mohammed. 1992. An inquiry into leisure and recreation pattern and its relationship to the open space and landscape design. Ph.D. diss., University of Edinbrugh.
79. Al-Shanqiti, Mohmmmed A. 1994, 2nd edition. Manhaje wa Dirasat li-Ayat al-Asma wa al-Sifat. [Methodology and studies in the meanings of the divine names and attributes]. Riyadh: Dar al-Tuhaf al-Nafaeis.
80. Al-Sharief, Abdoh Q., and Ata Mohammed Haddadi. 2000. Al-tasahur wa juhoud al-Mamlakah fi Majal mukafahatuhu. [Desertification and the Saudi efforts in this field]. Riadh: Ministry of Agriculture and Water.
81. Alsharq Alawsat. 1999. Beverley Hills. 22 (28, November) : 5.
82. Al-Sharqawi, Effat. 1976. Al-fikr al-dieni fi muwajahat al-asr. [The religious trend in confrontation with the era]. Beirut: Maktabat al-Shabab.
83. Al-Shawkani, Mohammed bin-Ali. 1995. Fath al-Qadier. [Allah's inspiration in the exegesis of Quran]. Compiled by abd-al-Rahman 'Amairah. Jeddah: Dar al-Andalus al-khadara.
84. Al-Sihaibani, abd-al-Ziz M. 1999. Ezra'au saharina talhan. [Plant our deserts with talh]. Al-Yamamah, 9 January, 18.
85. Al-Siouti, Jalal-al-Dein. Not dated. Al-Tahbier fi Ilm al-Tafsier. [Writings in the discipline of exegesis].
86. Al-Siouty, Jalal-al-Dien A. and al-Mahali, Jalal-al-Dien M. Not dated. Tafsier al-

- Jalalain. (The exegesis of al-Jalalain).
87. Al-Tabari, Muhammed bin-Jrier. Not dated. Jami'a al-bian fi tawiel aie al-Quran. [The collective exegesis of Quranic verses]. Maccah: Dar al-Tarbiah wa al-Turath.
 88. Al-Takriti, Mohammed. 1994. Afaqun bila hudud: bahth fi handasat al-nafs al-bashariah. [A research on the humanistic psychology]. Dar al-Muntalq.
 89. Al-Tha'aalibi, abi-Mansour. 1972. Fiqh al-Lughah wa sirru al-'Arabiah. [Philology of the language and secret of Arabic language]. Compiled by Mustafa al-Saqqa, Ibrahim al-Abiari, and abd-al-Hafidh Shalabi. Cairo.
 90. Al-Thagafy, Sultan Ahmad. 1991. Tourism patterns and behaviour in Saudi Arabia with special reference to the Emirate of Makkah al-Mkarramah Province: a geographical study. Ph.D. diss., University of Southampton.
 91. Al-Tirmidhi, Mohammed bin-'Aisa. (not dated). Sunan al-Tirmidhi. [The citation of the Prophetic Sunnah by al-Tirmidhi]. Compiled by Ahmed Mohammed Shakir. Cairo: Dar al-Hadith.
 92. Al-Turki, abd-al-Gadir I. 1998, 1999. Interview by author, Summer, Medina. Written manuscript.
 93. Al-Turkistani, Mohammed. 1998. Interview by author, Summer, Medina. Written manuscript.
 94. Al-Wakiel, Mohammed al-Saied. 1987. Jawlah fi Asr al-Khulafa al-Rashidien: Dirasah Wasfiah Tahliliah li-Ahdath Tilc al-Fatrah. [History of the Wise Caliphate period: ethnographic and analytical study of events of that time]. Jiddah: Dar al-Mujtama'a.
 95. Al-Zandani, abd-al-Majied. 1987. Al-mu'ajizah al-'elmiah fi al-Quran. [The scientific miracle in the Quran]. In Tasiel al-E'ajaz al-'Eelmi fi al-Quran wa al-Sunnah, (invistigations in the scietific miracle of Quran and Prophetic Sayings): Proceeding of the conference in Islamabad, Pakistan, October, 18-21, 1987, by Rabitat al-'Aalam al-Islami. Mecca: Rabitat al-'Aalam al-Islami, 14-36.
 96. Al-Zuabi, Fadiyah. 1999. Al-Riyadh namodhaj liltaghalub ala tahadiat bina mudun fi al-sahra: abd-Allah al-Naim ulakhis sairat madinah fi al-mutamar al-awal lilumarah bil-Kuait. [Riyadh is a model of overcoming challenges of city construction in desert: abd-Allah al-Naim presents a city's resume in the first conference on architecture in Kuait]. Asharq al-Awsat, 28 October, 18.
 97. Anon. Not dated. A poem for Abi al-Ala al-Meari copied from a manuscript titled "hullat al-Ebriez fi Rehlat Balabak wa al-Biqah al-Aziz" Arabic text, London: British Library.
 98. Anon. 1999. Tucson Official Visitors Guide. Tucson: the City Council.
 99. Anthony, A. C. 1993. 3rd Earl of Shafersbury, from The Moralists. In Hunt, J. D., Willis, P. (eds). The Genius of the Place: The English Landscape Garden (1620-1820). (third edition). Cambridge and London; The MIT Press.
 100. Aoke, Y. 1981. A Study of On-Site Evaluation for Site Planning: Lake Kasumigaura. Landscape Planning, 8 : 235-256.
 101. Appleton, J. 1996. The experience of landscape. (revised edition). Chichester: John Wiley and sons.
 102. Appleyard, Donald. 1973. Notes on Urban perception and Knowledge. In Downs, (ed.) Image and Environment. Chicago: Aldine Publishing.
 103. Arab, Mohammed U. 1921. Eihin min Austourat al-Hub. [The miracle of love]. In Adab al-Hidjaz. [Literature in Hidjaz], ed. al-Sabban, Mohammed S. Jeddah: al-Sabban.
 104. Anon. 1999. Qariah siahia tuhawil al-turath ila taraf wa tubarir khatiatiha fi damj al-aumarah al-Islamiah. [A recreational village transforms 'heritage into 'luxury' and justify its 'foul' in blending the Islamic Architecture]. Asharq al-Awsat, 5 May, 16.

105. Arizona Native Plant Society Urban Landscape Committee. 1992. Desert Accent Plants. Tucson: the Arizona Native Plant Society.
106. Arkoun, Mohammed. 1980. Spirituality and Architecture. In Building in Hot Climates: a Selection of Overseas Building Notes, Overseas Division of the Building Research Establishment, United Kingdom, 11-15. London: Crown.
107. Aronson, Shlomo. 1979. Coming to terms with the desert. In Landscape Towards 2000; conservation or desolation. International federation of landscape architects world congress landscape institute golden jubilee conference held in Cambridg, September 1979, edited by Douglas Smith, 62-3. Leicester: William Caple & Company Ltd.
108. Anon. 1993. The 50: the art world's most powerful people. Art News, summer, 92.
109. Asbashi, Muaffaq. 1994. Al-umarah al-bieiah fi al-Khaliej al-Arabi. [Environmental architecture in Gulf States]. In conservation of the distinctive architectural heritage of the Gulf region: Proceedings of the symposium in Dawha, Qatar, October 1-3, 1994, by Ministry of Municipal Affairs and Agriculture, 533-546.
110. Attar, Ahmed abd-al-Ghafour. 1984. Al-Fan wa etisaluh bil-da'awah. [Art and its relationship by calling to Islam]. Al-Manhal, Sha'aban-Ramadan, 46.
111. Austin, Mary. 1992. Arizona: The land of the joyous adventure. Edited by Borus, Daniel H. The United States: portraits of America from the 1920s. Ithaca: Cornell University Press.
112. Austin, Mary. 1969. The Land of Journey's Ending. New York: AMS Press.
113. Awwad, Mohammed H. 1921. Mann Hoa al-Hur al-Asri. [What is the modern freedom]. In Adab al-Hidjaz. [literature of Hidjaz], ed. al-Sabban, Mohammed s. Jeddah: al-Sabban.
114. Awwad, Mohammed H. 1922. Khawatir Musarrahaah. [Announced thoughts]. Jeddah: al-Sabban.
115. Babbie, E. 1986. The Practice Of Social Research. London: Wadsworth.
116. Badr, abd-al-Basit. 1993. Al-Tarikh al-shamil lil-Madinah al-Munawwarah. [The comprehensive history for Medina]. Al- Madinah al-Munawwarah.
117. Baer, Jurgen. 1988. Riyadh depolmatic Quarter. Garten and Landschaft, 8 : 26-33.
118. Bahnasi, Afief. 1987. Falssafat al-Fan `ind al-Tawhidi. [Philosophy of art of al-Tawhidi]. Dumascus: Dar al-Fiker.
119. Bajubair, abd-Allah. 1998. Wafat Qaws Qazah. [Death of the rainbow]. Al-Shafq al-Awsat. 16 December, Front 2.
120. Balling, J., Falk, J. 1982. Development of Preference for Natural Environment. Enironmental Behavior, 14 : 5-28
121. Baloul, Mustafa. 1995. Al-tatawor al-zira'ei fi al-Madina. [Agricultural development in Medina]. al-Amanah, 12 (January) 52-54.
122. Barreneche, Raul A. (1995). Desert oasis. Architectural Journal 84 (5) : 86-92.
123. Baudrillard Jean. 1988. America. Verso.
124. Baumgarten, Alexander G. 1961. Aesthetica. Hildesheim: G. Olms.
125. Bebb, Rachel. 1994. External Figures. Landscape Design, February: 12-15.
126. Bell, Diana. 1985. An oasis in the desert. Landscape Design (December) : 17-21.
127. Bell, J. 1993. Doing Your Research Project. Buckingham: Open Uneversity.
128. Behrens, Shirley. 1993. Reflecting God's creation. Art of the West, 6 (january/February) : 46-58.
129. Benke, Richard. 1998. Albuquerque homeowners battle over rocks vs. grass. Albuquerque Associated Press, 29 January.
130. Berg, B. 1989. Qualitative Research Methods for the Social Sciences. Needham Heights: Allyn and Bacon.
131. Berger, John. 1972. Ways of Seeing. New York: Viking Press.

132. Berleant, Arnold and Carlson, Allen. 1998. Environmental aesthetic: Introduction. Journal of Aesthetics and Art Criticism, 56 (Spring) : 88-100.
133. Bianca, Stephano and Anqawi, Sami. 1989. Common principles in the domestic architecture of Islam. In Islamic art: common principles, forms and themes: Proceedings of the international symposium held in Istanbul, Turkey, April, 1983, 89-101. Damascus: Dar Al-Fikr.
134. Bianca, Stphano. 1984. Madinah al-Munawarah, Planning and Urban Design Concepts for the central area. Mimar (12): 40-46.
135. Bianca, Stephano. 1982. Traditional Muslim cities and Western planning ideology: an outline of structural conflicts. In The Araba City: Its Character and Islamic Cultural Heritage, Proceedings of a Symposium Held in Medina, Kingdom of Saudi Arabia 28 February-5 March 1981, edited by I. Serageldin, S. el-Sadek, and R. Herbert, 36-52. Riyadh: The Arab Urban Development Institute.
136. Bin-Hajar, Ahmed bin-Ali. Fat'h al-Barie bi-sharh Sahih al-Imam abi-Abdullah al-Bukhari. [The interpretation of the 'correct citation of the Prophetic Sayings' of abi-Abdullah al-Bukhari]. An Arabic text edited by al-Khatib Mohib-al-dien, Abdulbaqi Mohammed and al-Khatieb Qusai. (1986), vol. 4, 7. Cairo: Dar al-Rayan lil-Turath.
137. Bin-Moussa, Ali. 1972. Rasaeil fi Tariekh al-Madinah. [Manuscripts in the history of Medina]. Riyadh: Dar-al-Yamamah.
138. Black, S., Broadhurst, P., Hightower, J., Schauman, S. 1985. The value of riparian habitat and wildlife to the residents of rapidly urbanising Community. In: Johnson, R.R. (ed.). Proceedings of the First North American Riparian Conference.
139. Blair, Sheila S., and Bloom, Jonathan M. 1994. The Art and Architecture of Islam: 1250-1800. New Haven: Yale University Press.
140. Blaxter, Loraine., Hughes, Christina.. and Tight, Malcolm. 1997. How to Research. Buckingham: Open University Press.
141. Bodeker, Richard. 1989. A Kingdom in the desert. Garten and Landschaft. 8 : 17-19.
142. Bodo, Murray. 1974. Walk in Beauty: Meditations from the Desert. Cincinnati: St. Anthony Messenger Press.
143. Bo-Hlaiqah, 'Ali Ehsan. 1999. Tahadiat ma Ba'ad al-Mizaniah. [Challenges post-the annual national budget]. Al-Majalah. 31 January, 47.
144. Brady, Emily. 1998. Imagination and the aesthetic appreciation of nature. The Journal of Aesthetics and Art Criticism, 52 (Spring) : 139-47.
145. Brannen, J. 1992. Mixing Methods: Qualitative and Quantitative Research. Avebury: Ashgate Publishing.
146. Brookbank, George. 1992. Desert Landscaping: How to Start and Maintain a Healthy Landscape in the Southwest. Tucson: the University of Tucson Press.
147. Bryman, A. and D. Cramer. 1997. Quantitative Data Analysis with SPSS for Windows: a Guide for Social Scientists. London: Routledge.
148. Bryman, A. 1988. Quantity and Quality in Social Research. London: Unwin.
149. Bucaille, Maurice. 1990. The Bible, the Quran, and Science. New Delhi: Idara Isha'at-E-Diniyat Ltd.
150. Budd, Malcolm. 1998. Delight in the natural world: Kant on the aesthetic appreciation of nature. Part II: natural beauty and morality. British Journal of Aesthetics, 38 (April) : 117-26.
151. Bdiansky, Stephen. 1995. Nature's Keepers: the New Science of Nature Management. London: Weidendfeld & Nicolson.
152. Burckhardt, Ibrahim Titos. 1984a. Dawr al-funoun al-jamilah fi al-ta'aliem al-Islami. [The role of fine arts in Islamic education]. In Saied Husain Nasr (ed.). Al-falsafah wa

- al-adab wa al-funoun al-jamilah min wojhat al-nadhar al-Islamiah. [Philosophy, literature, and fine arts from an Islamic point of view]. Jeddah: Ukadh.
153. Burckhardt, Ibrahim Titos. 1984b. The void in Islamic art. Studies in Comparison Religion, 16 : 79-82.
154. Burgess Ernest W. 1996. The Growth Of The City: An Introduction To A Research Project. Edited by LeGates, Richard T. and Stout Fredric. The city reader. London: Routledge.
155. Burgess, Robert L. 1965. Utilization of desert plants by native peoples: an overview of Southwestern North America. Arranged by Bender, Gordon L, Native plants and animals as resources in arid lands of the Southwestern United States. Flagstaff: Arizona State College.
156. Burke, Edmund. 1998. A philosophical Enquiry into the Sublime and Beautiful and Other Pre-Revolutionary Writings. London: Penguin.
157. Burton, Sir Richard F. 1964. Personal narrative of a pilgrimage to Al-Madinah and Meccah by Sir Richard F. Burton, edited by Isabel Burton. New Delhi: Asian Educational Services.
158. Bye, A. E. 1983. Art into Landscape, Landscape into Art. Mesa: PDA Publishers Corporation.
159. Cahill, Mary. 1968. The Desert Speaks. San Antonio: The Naylor Company.
160. Cantacuzino, Shervan. 1982. From courtyard to street: recent changes in the pattern of Arab cities. In the Arab City: its character and Islamic cultural heritage: Proceedings of a symposium held in Medina, Kingdom of Saudi Arabia 28 Feb.-5 Mar. 1981, edited by Ismail Serageldin and Samir El-Sadek, 84-92. The Arab Urban Development Institute.
161. Carlson, Allen. 1997. Aesthetic appreciation of the natural environment. In Aesthetics, eds Feagin, Susan and Maynard, Patrick, 30-40. Oxford: Oxford University Press.
162. Castell, R. 1993. The Villas of the Ancients Illustrated. Third edition. 1728, in Hunt, J. D., Wills, P. Ed. The Genius of the Place: The English Landscape Garden 1620-1820. Cambridge and London: The MIT Press,.
163. Clark, Kenneth. 1969. Civilisation: a Personal View. London: British Broadcasting Corporation.
164. Coffin RJ. And Lipsey MW. 1981. Moving back to the land: an ecologically responsible lifestyle change. Environment and Behaviour 13 : 42-63.
165. Coffin, Raymond J., and Lipsey, Mark W. 1981. Moving back to the land: an ecologically responsible lifestyle change. Environment and Behavior 13 (January) : 42-63.
166. Collenetta, Sheila. 1985. An Illustrated Guide to the Flowers of Saudi Arabia. London: Scorpion Publishing.
167. Constant, B., 1992. In Vidler Anthony. The Architectural Uncanny: Essays in the Modern Unhomely. Cambridge: The MIT Press, 45.
168. Cooper, Tom C. 1974. The Photography of Josef Muench: From the Pages of Arizona Highways. Phoenix: Arizona Highway.
169. Corner, J. 1996. The Obscene (American) Landscape. In Academy Editions. Landscape Transformed. London: Academy Group, 1996.
170. Coughlin, R., Goldstein, K. 1970. The extent of agreement among observers on environmental attractiveness. Regional Science Research Institute, Discussion Paper, series no. 37, Philadelphia, PA., 1970.
171. Creswell, K. A. C. 1940. Early Muslim Architecture. Oxporel: the Clarendon Press.
172. Cropper, S. 1982. Theory and strategy in stufy of planning processes and the uses of the case study. Environment and Planning. 9 : 341-357.

173. Dagher, Shirble. 1998. Madhahib al-Husn. [Doctrines of beauty]. Beirut: al-Markaz al-Thaqafi al-Arabi.
174. Dagher, Shirbil. 1999. Sina'at al-zinah wa al-jamal 'einda Ikhwan al-Safa. [The make of adornment of Ikhwan al-Safa]. Alhayat, 23 August, 14.
175. Daily Pennsylvanian, Green Times. 1996. University of Pennsylvania Recycling Update. Spring : 12.
176. Daniel, Terry C. 1990. Measuring the quality of the natural environment: a psychological approach. American Psychologist, 45 (5) : 633-637.
177. Dean, Andrea Oppenheimer. (1996). Paradise found. Landscape Architecture, 57 (December) : 66-88
178. Denscombe, Martyn. 1998. The Good Research Guide: for small-scale social research projects. Buckingham: Open University Press.
179. Dietsch, Deborah K. (1995). Art of the wild. Architectural Journal, 84 (5) : 82-4.
180. Diftardar, Hashim. 1984. Al-fannan al-Abqari wa hasat al-fan. [Genius artist and sense of beauty]. Al-Manhal. Shaban-Ramadan 46, 54-56.
181. Doglas, Jack. 1985. Creative Interviewing. Beverly Hills: Sage Publications.
182. Dorst, John D. 1991. Written Suburb: An American Site, an Ethnographic Dilemma. Philadelphia: University of Pennsylvania.
183. Douglas Residence. 1988. Landscape Architecture. (November) : 50-51.
184. Drew, Jesse. 1995. New sogobia is not for sale. Felix: A Journal of Media Arts and Communication: Landscape(s). 2 (1) : 123-29.
185. Druse, Ken, and Margeret Roach. 1994. The Natural Habitat Garden. New York: Clarkson Potter.
186. Duffield, Mary Rose. 1981. Plants for Dry Climate. Tucson: H. P. Books.
187. Dustan, Bernard. 1999. Johan Ruskin: The Elements of Drawing. Cambridge: Dover Publication.
188. Eakin, Lee. 1996. A blooming desert. American Nurseryman, 15 (November) : 44-47.
189. Eaton, Marcia Muelder. 1998. Fact and fiction in the aesthetic appreciation of nature. The Journal of Aesthetics and Art Criticism 56 (2) : 149-156.
190. Ehrlich. 1962. The Eternal Present: The Beginnings of art. Princeton: Princeton University Press.
191. Eigeland, Tor. 1992. Understanding the badia. Aramco World, 48 (November/December): 10-17.
192. Anon. 1936. Encyclopaedia of Islam.
193. Evernden, Neil. (1992) The Social Creation of Nature. Balitmore: Johns Hopkins University.
194. Fahs, Hani. 1999. Al-ard wa qad sarat himaiataha wajiban 'ainian wa kafaecian. [Safekeeping of Planet earth is obligatory from an Islamic legislative doctrine]. Alhayat, 18 April, 23.
195. Failor, Seamus W. 1988. Landscape Architecture in Saudi Arabia. Landscape Research, 13 (2) : 23-25.
196. Fakhouri, Labibah. 1907. Jamal al-Tabi'a-ah. [Aesthetic of nature]. Al-Muqtataf. March, 217-222.
197. Farah, Cynthia. 1988. Literature & Ladnscape: Writers of the Southwest. Elpasó: Texas Western Press.
198. Farahat, Abdelmohsen M. and Alturki, Ashraf. 1991. Proposed Historic Trail for Almadinah Almunawarah, in Alvarez, S. *et. al.* eds. Architecture and Urban Space; Proceedings of the Ninth International PLEA Conference, Seville, Spain, September 24-27.

199. Farahat, Abdelmohsen M., and Cebeci, Numan M. 1982. A housing project: intentions, realities, and alternatives. In the Arab City: its character and Islamic cultural heritage: Proceedings of a symposium held in Medina, Kingdom of Saudi Arabia 28 Feb.- 5 Mar. 1981, edited by Ismail Serageldin and Samir El-Sadek, 303-11. The Arab Urban Development Institute.
200. Farahat, Abdelmohsen M. 1984. Needed legislation for historical preservation in Saudi Arabian cities. Unpublished handout based on the work of the author in a research project entitled 'Evaluation And Development Of Building Codes And Land-Use Regulations For The Principal Cities Of Saudi Arabia.'
201. Farahat, Ahmed Hasan. 1986. Al-Khilafah fi al-Ard. [Stewardship on Earth]. Kuwait: Dar al-Arqam.
202. Fernald, Mary. 1995. Dirts For Making Things: An Apprenticeship In Maricopa Pottery As Told To Janet Stoeppelmann. Agstaff: Northland Publishing.
203. Filor, Seamus. 1988. Landscape architecture in Saudi Arabia. Landscape Research, 13 (2) : 23-29.
204. Foad, abd-al-Fattah. Najah mawsim al-Hadj: Tawfier al-miah. [Successful Pilgrimage season: supply of water]. al-Amanah, 15 (May) : 4-9.
205. Fontana, Andrea and Frey, James H. 1998. Interviewing: the Art of Science. Edited by Denzin, Norman K., and Lincoln, Yvonna S. Collecting and Interpreting Qualitative Materials. Thousand Oak: Sage Publications.
206. Foster, David. 1999. Century's Growth Leaves Earth Crowded _ And Noisy. Associated Press, 26 June.
207. Francis, M. and Hester, Jr. R. T. 1990. The Meaning of Gardens: Idea, Place, and Action. Cambridge: MIT Press.
208. Garden and Landscape Design: Historical development, in Britannica. Middlehttp://www.eb.com , p.1.
209. Gallery, Gerald Peters. 1986. Georgia O'Keeffe: Selected Paintings and Works on Paper. Dallas: The Crescent.
210. General Management in Medina Municipality. 1997. Mashari'e bilmalaien. [Projects in millions]. In Periodical Issue of Medina Municipality, 15 (May) : 37-39. Medina: Municipality of Medina.
211. Ghalib, al-Sahrief Shahat. 1998. Interview by author, Summer, Medina. Written manuscript.
212. Gibbs, Nancy. 1996. Power gardening: An earthy hobby has been transformed into a status game by boomers with plenty of money mulch. Time Magazine.
213. Gibson, L. J. 1969. The amenities: an exaggerated factor in Arizona's growth. Arizona Review 18 : 6-11.
214. Godlovitch, Stan. 1998. Evaluation Nature Aesthetically. The Journal of Aesthetics and Art Criticism. Spring, 113-125.
215. Golombek, Lisa. 1988. Theories and Principles of Design: the Architecture of Islamic Societies. The Agha Khan Program for Islamic Architecture.
216. Golt, Rick. 1980. Eternal Saudi Arabia. London: ELK Publications.
217. Gracyk, Theodore A. Rethinking Hume's standard of taste. The Journal of Aesthetics and Art Criticism, 52 (Spring) : 169-81.
218. Graham, Stephen and Marvin, Simon. 1996. Telecommunications and the City: Electronic Spaces, Urban Places. London: Routledge.
219. Grainger, J. and Ganadilly, A. 1986. Hemas: an investigation into a traditional conservation ethic in Saudi Arabia. Journal of the Saudi Arabian Natural History Society 2 (July) : 28-32.

220. Greenbie, Barrie B. 1981. Spaces: Dimensions of the Human Landscape. New Haven: Yale University.
221. Gregg, Josiah. 1990. Commerce of the Prairie. Norman, Oklahoma: University of Oklahoma Press.
222. Gruchow, Paul. 1999. The Necessity of Empty Places. Minneapolis: Milkweed Editions.
223. Hafidh, abd-al-Salam Hisham. 1955. Thawratu al-jazirah. [The revolution of the Peninsula]. Cairo: Ahmed Hasan Ghazi.
224. Hagerty, Donald J. 1993. Desert Dreams: the Art and Life of Maynard Dixon. Salt Lake City: Peregrine Smith.
225. Hakiem, Radi. 1984. Al-ihsas bi-al-jamal. [Sense of beauty]. Al-Manhal. 46 (Shaban-Ramadan) : 46-49.
226. Hamed, Safei. 1989. Saudi Park / U.S. style. Landscape Architecture. May : 32-3.
227. Hamdoun, Mohammed. 1984. Al-ausus al-jamaliah lil-funoun al-Islamiah. [The aesthetic bases of Islamic arts]. Al-Manhal, Sha'aban-Ramadan, 46.
228. Hamilton, Frances L. 1933. The Desert Garden. Phoenix.
229. Hammadi, Talal Hassan. 1993. Outdoor recreational leisure patterns in Saudi Arabia and their roles in determining opens space planning and design: the case of Jeddah's cornice. Ph.D. diss., Sheffield University.
230. Hanaway, W. L., 1976. Paradise on Earth: The Terrestrial Garden in Persian Literature. In, Macdougall, E. Ettinghausen, R., eds. The Islamic Garden. Dumbarton Oaks: Washigton, D.C. 44-63.
231. Hannah, P. 1984. Art in the Landscape: Sculpture in a Wild Surrey Garden. Landscape Design, 152, (December) : 42-43.
232. Hariri, Magdi. 1991. Tasmim al-Rowshan wa amamiatuhu lil-maskan. [Design of rowshan and it importance for Houses]. Majlat Jamiaat um-al-Qura, [magazine of the University of um-al-Qura, 3 (5): 176-237.
233. Harper, Douglas. 1998. On the Authority of the Image: Visual Methods at the Crossroads. Edited by Denzin, Norman K., and Lincoln, Yvonna S. Collecting and interpreting Qualitative Materials. Thousand Oak: Sage Publication.
234. Harvey, John. 1993. Restoring Period Garden: from the Middle Ages to Georgian Times. Buckinghamshire: Shire Publication.
235. Harvey, J. H. 1991. England, Medieval Gardens. In Geoffrey and Susan Jellicoe, et al., The Oxford Companions to Gardens. Oxford and New York: Oxford University.
236. Hasan, Arif. 1980. Shelter and Conservation in an Urbanisin Islamic World. In Building in Hot Climates: a Selection of Overseas Building Notes, 24-27. United Kingdom: Building Research Establishment.
237. Hatim, Emad. 1990. Fiqh al-Lughah wa Tariekh al-Kitabah. [Paradigms of language and history of writing]. Cairo: Dar al-Turath.
238. Hebert, Joseph H. 1999. Clinton budget to propose \$1 billion to preserve sensitive lands. Washigton Associated Press 12 January.
239. Hecht, Melvin E. 1975. The cecline of the grass lawn tradition in Tucson. Landscape 19 (May) : 3-10.
240. Hegel, G. W. F. 1997. Art, nature, freedom. Edited by Feagin, Susan and Maynard, Patrick. Aesthetics, 192-197. Oxford: Oxford University Press.
241. Henderson, Randall. 1968. Sun, Sand and Solitude: Vignettes from the Notebook of a Veteran Desert Reporter. Los Angeles: Westernlore Press.
242. Herzog, Thomas R., Kaplan, Stephen and Rachel. The prediction of preference for familiar urban places. Environment and Behavior, 8 (December) : 627-645.

243. Higgs, E. 1994. Expanding the scope of restoration ecology. Restoration Ecology, (2) : 137-146.
244. High, Kathy, Rich Prelinger, Liss Platt, and Jason Livingston. (1995). (Pre)text: a landscape dialogue with Kathy high, Rich Prelinger, Liss Platt, and Jason Livingston. Felix: A Journal of Media Arts and Communication: Landscape(s). 2 (1) : 8-13.
245. Hitoshi, Igarashi. 1987. A theory of creation and beauty in the Quran. Journal of Aesthetics, 8: 47-58.
246. Hjort, B. 1979. The evolution and ecological significance of the aesthetic experience. Man-Environment Systems, 9 (July—September) : 209-212.
247. Hodgson, R. N. and Thayer, R. L., Jr. 1980. Implied human Influence reduces landscape beauty. Landscape Planning, 7 (2): 171-180.
248. Holstein, James A. and Gubrium, Jaber F. 1995. The Active Interview. Thousand Oaks: Sage Publications.
249. Hough, Michael. 1983. Tapping the city's agricultural resources. Landscape Architecture, (January) : 54-58.
250. Hough, Michael. 1995. Cities and Natural Process. London: Routledge.
251. Houghton, Arthur D. 1929. Forward to the Journal of Cactus and Succulent Society of America. Journal of Cactus and Succulent Society of America, 1 (1) : 1-2.
252. Hull, R. B. and Stewart, W. P. 1992. Validity of photo-based scenic beauty judgments. Journal of Environmental Psychology, 12 : 101-114.
253. Hume, David. 1965. The Sceptic. Edited by Lenz, J. W. Essays. London: Bobbs-Merrill.
254. Hunt, John Dixon and Willis, Peter, eds. 1993. The Genius of the Place: the English Landscape Garden 1620-1820. Cambridge: the MIT Press.
255. Ibn-al-Najjar, al-Hafidh abi-abd-Allah Mohammed. Not dated. Al-Durrah al-Thaminah fi Akhbar al-Madinah li-ibn-al-Najjar. [The fancy pearl in the news of Medina by ibn-al-Najjar]. Compiled by Shukri, Husain Mohammed. 1996. Medina: Dar al-Madinah al-Muawarah.
256. Ibn-Hajar, Ahmed bin-Ali Al-'Aasqalani. 1994. Fath al-bari fi sharh sahih al-Bukhari. [The exegesis of the correct citation of al-Bukhari for the Prophetic Hadith]. Compiled by abd-al-Aziz bin-abd-Allah bin-Baz. Beirut: Dar al-Fikr.
257. Ibn-Kathier, al-Havith Emad al-Dien Isma'eil. Not dated. Tafsier al-Quran al-'Athiem. [the exegesis of the sovereign Quran]. Edited by abd-al-Aziz Ghunaim, et al. Cairo: Dar al-Shieb.
258. Ibn-Khaldoun, abd-al-Rahman. 1984. Mukadimat ibn-Khaldoun. [The introduction of ibn-Khaldoun]. Beirut: Dar al-Kalam.
259. Ibn-Khaldoun, abd-al-Rahman. 1981. Tariekh al-'aallammah ibn-Khaldoun. [The history of the scholar: ibn-Khaldoun]. Beirut: Dar al-Kitab al-Lubnani.
260. Ibn-Shabbah, U. Akhbar al-Madinah. [Narratives of Medina].
261. Ibnu-Majah, abu-abd-Allah Mohammed. Not dated. Sunan ibnu-Majah. [The citation of the Prophetic Sunnah by ibnu-Majah]. Compiled by Mohammed Fouaad abd-al-Baqi. Beirut: Dar-al-Fikr.
262. Irving, Washington. 1835. A Tour on the Prairies. Philadelphia: Carey, Lea, and Blanchard.
263. Islam: the Search for Identity. Video tape.
264. Ismaeil, Shaban Mohammed. 1980. Madkhal li-dirasat al-Quran wa al-Suannah wa al-'uloum al-ensaniah. (Introduction to studying Quran, the Prophetic sayings, and science of humanity). Cairo: Dar al-Ansar.
265. Izetbegovic, Ali Alija. 1994. Al-Islam bain al-sharq wa al-gharb. [Islam between east and west]. Munchen, Germany: Bavaria Velag & Handel GmbH.

266. Jackovics, Theodore W. and Saarinen, Thomas F. 1978. The sense of place: student impressions of Tucson and Phoenix. Arizona Review 27 (April) : 1-12.
267. Jacobs, Peter. 1989. The gulf at glance. Landscape Architecture. May.
268. Jad al-Haq, Jad al-Haq Ali. 1987. Taqdiem: Al-mu'ajizah al-'elmiah fi al-Quran. [Introduction: the scientific miracle in the Quran]. In Tasiel al-E'ajaz al-'Eelmi fi al-Quran wa al-Sunnah, (invisitations in the scietific miracle of Quran and Prophetic Sayings): Proceeding of the conference in Islamabad, Pakistan, October, 18-21, 1987, by Rabitat al-'Aalam al-Islami. Mecca: Rabitat al-'Aalam al-Islami, 11-13.
269. Jamal, Ahmed Mohammed. 1984. Al-fan wa mawqif al-Islam minhu. [Art and Islamic perspective]. Al-Manhal, 46 (Sha'aban-Ramadan) : 8-11.
270. Jecyll, Gertrude. 1904. Wood and Garden. London: Longmans, Green, and CO.
271. Jellicoe, Geoffery and Jellicoe, Susan, 1987. The Landscape of Man: Shaping the Environment from Prehistory to the Present day. London: Thames and Hudson.
272. Jenaideb, Abd-Allah. 1993. Dwellings and dwellers of a contemporary Madina, (unpublished Ph.D. thesis) Department of Architecture and Building Science, University of Strathclyde.
273. Johnson, Paul C., and Elizabeth Hogan. 1972. The Beautiful Southwest. Menlo Park: Lane Magazine and Book Company.
274. Jomah, Hisham A. 1992. The traditional process of producing a house in Arabia during the 18th and 19th centuries: a case study of Hedjaz. Ph.D. diss., University of Edinburgh.
275. Jones, R. 1996. Research Methods In The Social And Behavioural Sciences. Sunderland: Sinauer Associates.
276. Jonson, James. 1995. Public Art with Meaning. Diploma diss., University of Sheffield.
277. Kals, Elisabeth, Daniel Schumacher, and Leo Montada. 1999. Emotional affinity toward nature as a motivational basis to protect nature. Environment and Behaviour, 31 (2) : 178-202.
278. Kamal, Mohammed Saied. Not dated. Al-Rihalah al-Hidjaziah, bi Qalam Mohammed Labib al-Batnoui. [The Hidjazi trip by al-Batnoui]. Taif: Maktabat al-Ma'arif.
279. Kaplan, Rachel. 1978. The Green Experience. Edited by Kaplan, Stephen. and Kaplan, R. Humanscape: Environments for People. Massachusetts: Duxbury, pp. 186-194.
280. Kaplan, R., Herbert, E. 1987. Cultural and Sub-Cultural Comparisons in Preferences for Natural Settings. Landscape and Urban Planning, 14 : 281-293.
281. Kaplan, Rachel. 1985. The analysis of perception via preference: a strategy for studying how the environment is experienced. Landscape Planning, 12 : 161-176.
282. Kaplan, Rachel and Kaplan, Stephen. 1992. The Experience of Nature: a Psychological Perspective. Cambridge: Cambridge University Press.
283. Kaplan, Rachel. 1976. Adaptation, structure, and knowledge. Edited by. G. T. Moore and R. G. Golledge. Environmental Knowing: Theories, research and methods. Pennsylvania: Dowden, Hutchinson, and Ross Inc.
284. Kazin, A. 1988. A Writer's America: Landscape in Literature. German Democratic Republic: Thames and Hudson.
285. Kearins, Judith. 1981. Visual spatial memory in Australian Aboriginal children of desert regions. Cognitive Psychology 13 : 434-460.
286. Kearins, Judith. 1984. Visual spatial memory in Aboriginal and white Australian children. Australian Journal of Psychology 30 (1) : 202-23.
287. Kelly, Kathleen. 1976. Landscaping the Saudi Arabian Desert. Philadelphia: the Delancey Press.

288. Kendle, Tony and Rose, Juliet. 1999. Native vs. alien. The Horticulturist 8 (3) : 6-9.
289. Kennedy, Christina B., and Zube Ervin H. 1991. Attitudes towards vegetation in a desert urban forest: creating a sense of place. Journal of Arboriculture 17 (June) : 159-65.
290. Khan, Muqtedar M. 1998. Constructing identity in "global" politics. The American Journal of Islamic Social Sciences 15 (3) : 81-106.
291. King Fahd Holy Quran Printing. 1990. The Holy Quran: English translation of the meanings and commentary. Medina: King Fahd Holy Quran Printing.
292. King, Geoffrey R. 1998. The Traditional Architecture of Saudi Arabia. London: I.B. Tauris
293. Kingan, Samuel Latta. 1920. The Nature of Landscape. Privately printed.
294. Kluckhohn, C. 1962. The concept of culture. Edited by Kluckhohn R. Culture and Behaviour. New York: Free Press of Glencoe.
295. Kolodny, Annette. 1984. The Land Before Here: Fantasy and Experience of the American Frontiers, 1630-1860. Chapel Hill: University of North Carolina Press.
296. Krueger, A. Richard. 1988. Focus Group: a Practical Guide for Applied Research. Newbury Park: Sage Publications.
297. Krutch, Joseph Wood. 1995. The Best Nature Writing of Joseph Wood Krutch. Salt Lake City: University of Utah Press.
298. Kupfer, Joseph. 1997. Swift Things are beautiful: contrast in the natural aesthetic. Jornal of Aesthetic Education, 1-14.
299. Kuralt, Charles. 1998. Charles Kuralt's American Moments. New York: Simon & Schuster.
300. Lake-Thom, Bobby. 1997. Spirits of the Earth: a Guide to Native American Nature Symbols, Stories, and Ceremonies. New York: A Plume Book.
301. Lamb, R. J. and Purcell, A. T. Perception of naturalness in landscape and its relationship to vegetation structure. Landscape and Urban Planning, 19 (4) : 333-352.
302. Lambe, Robert A. Smardon, Richard C. 1985. Colour photocopy for visual simulation. Landscape Research, 10 (3) : 18-20.
303. Lankford, d. Louis. 1998. Aesthetic experience in a postmodern age: recovering the aesthetics of E. F. Kaelin. Jornal of Aestheitic Education, 32 (1) : 23-29.
304. Lasdun, Susan. 1991. The English Park: Royal, Private, and Public. London: Andre Deutsch.
305. Latour, Bruno. 1987. We Have Never Been Modern. Cambridge: Harvard University Press.
306. Law, Charles S. and Zube, Ervin H. 1983. Effects of photographic composition on landscape perception. Landscape Research, 8 (1) : 22-23.
307. Lawless, R. I. 1980. The Future of Historic Centres: Conservation or Redevelopment? Edited by Lawless, R. I., and Blake, G. H. (eds.) The Changing Middle Eastern City. London: Croom Helm, 178-208.
308. Lemerick, Patricia N. and Southall, Thomas W. 1992. Revealing Territory: Photographs of the Southwest by Mark Klett. Albuquerque: University of New Mexico.
309. Leccese, Michael. 1996. Return of the natives. Landscape Architecture, 86 (2) : 80-101.
310. Lewellyn, Othman B. 1980. The objective of Islamic law and administrative planning. Ekistics/Oikietikh: The Problems and Science of Human Settlements. 47 (280) : 11-13
311. Linton, R. (1945). The Cultural Background of Personality. New York: D. Appleton-Century.
312. Lipsky, G. D. 1959. Saudi Arabia: its People, its Societ, its Culture. New Haven.

313. Llewellyn, Othman abd-ar-Rahman. 1987. The proposed hima Jabal Aja. Riyadh: The National Commission for Wildlife Conservation and Development, Kingdom of Saudi Arabia. Photocopied.
314. Llewellyn, Othman abd-ar-Rahman. Environmental education and nature-oriented recreation in the proposed Jagbal Aja reserve. Riyadh: The National Commission for Wildlife Conservation and Development, Kingdom of Saudi Arabia. Photocopied.
315. Lowenthal, David. 1979. Age and artifact: Dilemmas of appreciation. Edited Meinig, D. W. The Interpretation of Ordinary Landscapes. New York: Oxford University Press.
316. Lowenthal, David. 1968. The American scene, Geographical Review, 58 : 61-88. Check on the year.
317. Lynch, Kevin. 1988. The Image of the City. Cambridge: MIT Press.
318. Macquitty, Miranda. 1990. Arabia: Sand, Sea & Sky. Produced and directed by Mckinnon Michael. 125 min. FF & Mckinnon Production. Videocassete.
319. Maghrabi, Mohammed A. 1985. Al-Malamih al-Haiat al-Ejtimaiah fi al-Hidjaz fi al-Qarn al-Rabie Ashar. [The social characteristics of Hidjaz in the fourteenth century '1300 Hidjrah calender corresponds to 1875']. Jeddah: Dar al-Elm.
320. Makki, M. S. 1982. Medina, Saudi Arabia: A Geographic analysis of the city and region. England: Avebury,.
321. Makram, A. J. Not dated. Lisan al-Arab. [The tong of Arabs]. Vol. 10. Beirut: Dar Sader.
322. Martin, Hans Peter and Schumann, Harald. 1996. Die Globalisierungsfalle: Der Angriff auf Demokratie And Wohlstand. [Trap of globalisation: attack on democracy and leisure]. Germany: Rowohalt Verlag GmbH. Translated into Arabic by Ali, Adnan Abbas. 1998. Kuwait: Aalam al-Marifah.
323. Marvell, A. 1993. From Upon Appleton Horse. In Hunt, J. D., and Willis, P. (eds.). The Genius of the Place; The English Landscape Garden (1620-1820). Cambridge and London: The MIT Press.
324. Masri, al-Hafiz B. 1986. Islam and Ecology. Edited by Fazlun M. Khalid and Joanne O'Brien. Islam and Ecology. London: Cassell.
325. Maurer RCC and Napier TL. 1981. Rural residents' perspectives of industrial development. Rural Sociology, 41 : 100-111.
326. May, Tim. 1997. Social Research: Issues, Methods and Process. 2nd edition.. Philadelphia: Open University Press.
327. Mazrui, Ali M. 1998. Globalisation, Islam, and the West: Between Homogenization and Hegemonization. The American Journal of Islamic Social Sciences 15 (3) : 1-14.
328. McCharg, Ian. 1969. Design with Nature. Garden City New York: Museum of Natural History.
329. McKibben, Bill. 1999. The End of Nature. New York: Anchor Books.
330. Mckinon, Michael. 1990. Arabia: Sand, Sea, and Sky. London: Guild Publishing.
331. McLuhan, Marshall. 1968. War and Peace in the Global Village. Ney York: Bantam Books.
332. McPherson, H. J. and Saarinen, Thomas F. 1977. Flood plain dwellers' perception of flood hazard. Arizona Review 26 (December) : 1-10.
333. McCracken, Harold. 1973. De Grazia. Tucson: The University of Arizona Museum of Art.
334. Mead W. R. 1993. Pictorial atlas of the world, London: Ottenheimer.
335. Medina Municipality. 1991. Alhadaeq wa al-Tashjier fi al-Madinah al-Munawarrah. [Gardens and plantation in Medina].

336. Medina Municipality. 1992. Dalil al-Zira'aah al-Manziliah. [Handbook of home gardening].
337. Meeker, Joseph M. 1974. The Comedy of Survival: Studies in Literary Ecology. New York: Scribner's.
338. Meining, D. W. 1979. The beholding eye: ten versions of the same scene. Edited by Meining, D. W. The Interpretation of Ordinary Landscape: Geographical Landscapes. New York: Oxford University.
339. Metchon, Jin Louis. 1984. Al-tarbiah min khilal al-funoun al-taqlidiah wa al-hiraf al-yadawiah wa al-turath al-thaqafi al-Islami. [Education through traditional arts, handy craft, and Islamic cultural heritage]. Edited by Saied Husain Nasr. Al-falsafah wa al-adab wa al-funoun al-jamilah min wojhat al-nadhar al-Islamiah. [Philosophy, literature, and fine arts from an Islamic point of view]. Jeddah: Ukadh.
340. Metropolitan Tucson Convention & Visitors Bureau. 1999. Tucson Visitors Guide, Spring-Summer.
341. Mill, John Stuart. 1997. What is Poetry. Edited by Feagin, Susan and Maynard, Patrick. Aesthetics. Oxford: Oxford University Press. 160-166.
342. Miller, A. G., Cope, T. A., and Nyberg, J. A. 1996. Flora of the Arabian Peninsula and Socotra. Edinburgh: Edinburgh University Press.
343. Miller, Patrick A. 1984. A comparative study of the BLM scenic quality rating procedure and landscape preference dimensions. Landscape Journal, 3 (February) : 123-35.
344. Ministry of Agriculture and Water. 1998. Al-taqadum al-ziraei fi al-mamlakah. (Agricultural advancement in the Kingdom). Annual Report.
345. Ministry of Petroleum and Mineral Resources, Deputy Ministry for Mineral Resources. Geological map of the Almadinah Quadrangle, Sheet 24D. Jeddah, 1981.
346. Moynihan, Elizabeth B. 1979. Paradise as a Garden: in Persia and Mughal India. London: James Price.
347. Moore, C. W., Mitchell, W. J., Turnbull, W. JR. 1993. The Poetics of Gardens. Cambridge and London: The MIT Press.
348. Moran, Reid. 1993. Ellen Rooksby and 'Desert Plant Life'. Cactus and Succulent Journal, 65 : 274-276.
349. Morgan, P. 1988. Focus Groups As Qualitative Research. Nwebury Park: Sage Publications.
350. Moslim, abu-al-Hasan al-Naisabouri. 1992. Sahih Moslim. [The correct citation of Moslim for the Prophetic Hadith]. Compiled by Mohammed Fouaad abd-al-Baqi. Cairo: Dar-al-Hadith.
351. Mostyn, B. 1979. Personal Benefit and Satisfactions Derived from Participation in Urban Wildlife Project. London: NCC Publication.
352. Mousa, Al-Afandi Ali. 1885. Wasf al-Madinah. [Description of Medina].
353. Mowat, R. C. 1958. Middle East Perspective. London: Blandford Press.
354. Msalam, A. S. 1993. Al-Madinah al-Munawara Fi al-Qarn al-Rabe Ashar al-Hijri. Cairo: Dar al-Manar.
355. Hackney, Rod. 1990. The Good, the Bad, and the Ugly: Cities in Crisis. London: Fredrick Muller
356. Municipality of Medina and Dar al-Handasah (1). 1991. The comprehensive plan of Medina central park. Medina: Dar al-Handasah.
357. Municipality of Medina and Dar al-Handasah (2). 1991. Medina socio-economic survey (the first report). Medina: Dar al-Handasah.
358. Mustafa, Salih Lamei. 1981. Al-Madianah al-Munawarah. Beirut: Dar al-Nahda al-Arabiah.

359. Nabel, Mustafa. 1979. Al-Madinah al-Munawarah: Taibat al-Hidjaz. [Mdina: Taibah of Hidjaz]. Alarabi, 97 (November): 68-91.
360. Nachtigal, Jerry. 1998. In growing West, Arizona's Verde Valley is a hot spot. Arizona Associated Press, 13 April.
361. Nadenicek, Daniel Joseph. 1997. The poetry of landscape ecology: an historical perspective. Landscape and Urban Planning, (37) : 115-122.
362. Nasim, Omar. 1998. Toward an Islamic aesthetic Theory. American Journal of Islamic Social Sciences, 15 (January) : 71-90.
363. Nasr, Seyyed Hossein. 1966. Ideals and Realities of Islam. Trowbridge and Londo: Redwood Press Ltd.
364. Nasr, Seyyed Hossein. 1976. Islamic Science and Illustrated Studies. Kazi Publications.
365. Nasr, Seyyed Hossein. 1990. Man and Nature: the Spiritual Crisis in Modern Man. London: Mandala.
366. Nassar, J. 1984. Visual Preferences in Urban Street Scenes: A Cross-Cultural Comparison between Japan and the United States. Journal of Cross-Cultural Psychology, 15: 74-93.
367. National Outdoor Leadership School. 1996. Leave No Trace: Outdoor Skills & Ethics: Western River Corridors. Lander: National Outdoor Leadership School.
368. Nauckhoff, A Josefina C. 1994. Objectivity and Expression in Thomas Reid's Aesthetics. The Journal of Aesthetics and Art Criticism, 52 (Spring) : 181-196.
369. Nelson, George. 1977. How to See: Visual Adventures in a World God Never Made. Boston: Little, Brown.
370. Newell, Patricia B. 1997. A cross-cultural examination of favorite places. Environment and Behaviour, 29 (4) : 495-514.
371. Nickerson, Grace P. 1929. Coronado's Cactus and Succulent Gardens. Succulent Society of America, 1 (September) : 5-6.
372. Norwood, Vera and Janice, Monk. 1997. Perspectives on Gender and Landscape. In The Desert is no Lady. Tucson: University of Arizona Press.
373. O'Kane, Paul. 1998. Sabera Bham: Concealed visions-veiled sisters. Third Text 43 (Summer) : 101-103.
374. Office for National Statistics. 1999. Britain 1999: the Official Yearbook of the United Kingdom. London: the Stationary Office.
375. Ogrin, D. 1993. The World Heritage of Gardens. London: Thames and Hudson.
376. Ohmae, Kenichi. 1990. The Borderless World. London: Fontana Books.
377. Olin, George. 1994. House in the Sun: a Natural History of the Sonoran Desert, (second edition). Tucson: Southwest Parks and Monuments Association.
378. Orians, G. H. 1986. An ecological and evolutionary approach to landscape aesthetics. Edited by Edmund Penning-Rowsell and David Lowenthal. Landscape meanings and values, Report of a symposium organised by the Landscape Research Group and held on 4-6 April 1984 at the Royal Institution, London, and Down Hall, Essex. London: Allen and Unwin.
379. Ouis, Soumaya Pernilla. 1998. Islamic ecotheology based on the Quran. Islamic Studies, 37 (2) : 151-181.
380. Palm Spring Desert Museum. 1999. Guide and Tour Book.
381. Palmer, James F. 1997. Stability of landscape perceptions in the face of landscape change. Landscape and Urban Planning, 37 : 109-113.
382. Pandya, Vishvajit. 1998. Hot Scorpions, sweet Peacocks: Kachchhe art, architecture and action. Journal of Material Culture, 3 (January) : 51-75.

383. Papanek, Victor. 1982. Design for the Real World: Human Ecology and Social Change. London: Granada.
384. Parker, Margaret T. 1948. Tucson: city of sunshine. Economic Geography, 24: 79-113.
385. Perry, B. 1992. Landscape Plants for Western Regions: An Illustrated Guide to Plants for Water Conservation. Claremont: Land Design Publishing.
386. Pesce A. 1976. Jeddah: portrait of an arabian city. cited in Jenaideb A. 1993. Dwellings and dwellers of a contemporary madina, Ph.D. diss. University of Strathclyde.
387. Peschar, Hannah. 1984. Art in the landscape: sculpture in a wild surrey garden. Landscape Design, December, 42-43.
388. Pike, Zebulon. (1889). Exploratory Travels Through the Western Territories of North America. Chicago: Lawrence and Co.
389. Pollitzer, Anita. 1988. A Woman on Paper: Georgia O'Keeffe. New York: Touchstone Book.
390. Preece, R. 1994. Starting Research. London: Pinter Publishers.
391. Purcell, A. T. and Lamb, R. J. 1998. Preference and naturalness: an ecological approach. Landscape and Urban Planning, 42, 57-66.
392. Qabbani, N. 1995a. Shab Nizar Qabbani. [Society of Nizar Qabbani]. Alhayat, 9 June, 20.
393. Qabbani, N. 1995b. al-Arab yakoloun qamar al-shier. [The Arabs eat the moon of poetry]. Alhayat, 23 June, 20.
394. Quigly, Kathleen. 1999. Bedouin Dreams and Arabian Nights: Creating the Illusion of a Tribal Tent for a Desert Palace in Riyadh. Architectural Digest. January, 56.
395. Qutb, Mohammed. 1982. Jahiliat al-qarn al-'eshrien. [Illiteracy of the twentieth century]. Beirut: Dar al-Shurouq.
396. Qutb, Saied. 1993. Al-Taswier al-Fannie fi al-Quran. [The artistic portraying in the Quran]. Cairo: Dar al-Shorouq.
397. Rabinaowitz, C. B., and Coughlin, R. E. 1970. Analysis of Landscape Characteristics Relevant to Preference. Philadelphia: Regional Science Research Institute.
398. Raffah, abd-al-Rahman. 1978. Jadawil wa yanabie'a. [Streams and brooks]. Medina: al-Nadi al-Adabi.
399. Raffah, abd-al-Rahman. 1998. Interview by author, Summer, Medina. Written manuscript.
400. Rahman, Fazlur. 1984. Islam and Modernity: Transformation of Intellectual Tradition. Chicago & London: the University of Chicago Press.
401. Rahenkamp, John. 1983. The agri-community: joint development of farm and suburb. Landscape architecture, (March) : 74-76.
402. Rees, Ronald. 1975. The scenery cult: changing landscape tastes over three centuries. Landscape, 19 (3): 39-46.
403. Reinharz, S. 1992. Feminist Methods in Social Research. Oxford: Oxford University Press.
404. Robinson, Roxana. 1989. Georgia O'Keeffe: A Life. New York: An Edward Burlingame Book.
405. Robinson, William. 1929. The Wild Garden. London: Johan Murray.
406. Rolston, Holmes. 1988. Environmental Ethics: Duties to and Values in the Natural World. Philadelphia: Temple University Prss.
407. Rose Richard. 1991. Comparing forms of comparative analysis. Political Studies, 3 (3) : 446-462.
408. Rose, Dan. 1990. Living the Ethnographic Life. Newbury Park: Sage Publications.
409. Rose, Dan. 1994. Active ingredients: ethnography of objects. Unpublished article.

410. Rose, James. 1961. The sensible landscape. Landscape, 10 (3) : 24-26.
411. Rowe, Peter G. 1993. Modernity and Housing. Cambridge: MIT Press.
412. Rudnick, Lois. 1997. Re-Naming the Land. Edited by Norwood, Vera and Janice Monk. The Desert is no Lady. Tucson: University of Arizona Press.
413. Saad, Muhammed. 1980. The Message of the Quran. Gibraltar: Dar al-Andalus.
414. Saarinen, T. F. and Cooke, R. U. 1971. Public perception of environmental quality in Tucson, Arizona. Journal of the Arizona Academy of Science, 6 (June): 260-274.
415. Saarinen, Thomas F. 1976. Environmental Planning: Perception and Behaviour. Boston: Houghton Mifflin.
416. Saarinen, Thomas F. 1988. Public perception of the desert in Tucson, Arizona. Journal of Architectural and Planning Research, 5 (Autumn) : 197-201.
417. Saarinen, Thomas F. and Cooke, Ronald U. 1971. Public perception of environmental quality in Tucson, Arizona. Journal of the Arizona Academy of Science, 6 (June) : 260-274.
418. Saidawi, Hayyan. 1992. Al-Islam wa Fiawiat Tatawour al-Umarah al-Arabiah. [Islam and Development of Arabian Architecture]. Beirut and Paris: Dar al-Mutanabi.
419. Sairafi Hassan. 1998, 1999. Interview by author, Summer, Medina. Tape recording and written manuscript.
420. Saito, Yuriko. 1998. The aesthetic of unscenic landscape. The Journal of Aesthetics and Art Criticism. Spring, 101-111.
421. Eben Saleh, Mohammed Abdullah. 1999. Reviving traditional design in modern Saudi Arabia for social cohesion and crime prevention purposes. Landscape and urban Planning 44 : 43-62.
422. Eben Saleh, Mohammed Abdullah. 1998. The use of historic symbols in contemporary planning and design. Cities, 15 (1) : 41-47.
423. Sandström, S. 1975. The Historical Factor Behind Landscape Appreciation. Man-Environment Systems, 5: (3) : 169.
424. Santa, Barbara. 1998. Death of Josef Muench. California Associated Press, 22 Deceber.
425. Scharf, Aaron. 1975. The Roots of Modern Art; Charles Baudelaire: Vangaurd of Modernism. Milton Keynes: Open University.
426. Schauman, Sally. 1998. The garden and the red barn: the pervasive pastoral and its environmental consequences. The Journal of Aesthetics and Art Criticism, 56 (Spring) : 181-190.
427. Schulte, Marie Jacobson. 1942 (a). Fruits of the desert. Cactus and Succulent Journal: Amateur Bulletin, 1 (March) : 55-64.
428. Schulte, Marie Jacobson. 1942 (b). The lure of the desert. Cactus and Succulent Journal: Amateur Bulletin, 1 (March) : 70-73.
429. Scott, M. J. and Cater, D. V. 1985. Picture or place? A multiple sorting study of landscape. Journal of Environmental Psychology, 17 : 263-281.
430. Salama, Mohammed Mukhtar. 1990. Saudi Arabian folra and its application in landscape design projects. Ph.D. diss. University of Edinbrugh.
431. Schimmel, A. 1976. The Celestial Garden. Edited by Macdougall, E. and Ettinghausen, R. The Islamic Garden. Washington. District of Columbia: Dumbarton Oaks.
432. Sell, James L. and Zube, Ervin H. 1985. Perception of and response to environmental change. Journal of Architecture and Planning Research, 3 (April) : 33-54.
433. Serageldin, Ismail. 1980. Watering the Garden. In Building in Hot Climates: a Selection of Overseas Building Notes, Overseas Division of the Building Research Establishment, United Kingdom, 11-15. London: Crown.

434. Serwer, Andy. 1999. The prince of tech investors. Fortune, 6 September, 50-63.
435. Shaer and Partners. 1991. Al-Muhimmah al-Aoula: Nataeidj al-Mash al-Ejtemaie al-Ektisadi. [The first task: the results of the socio-economic survey]. Medina: Dar al-Handasa liltasmim wa al-Estisharat al-Faniah.
436. Shaeir and Partners. 1991. Aqd Mashroua al-Mukhatat al-Tafsili al-Shamil lil-Madinah al-Munawwarah. [The contract of the comprehensive planning project of Medina]. Medina: Dar al-Handasa liltasmim wa al-Estisharat al-Faniah.
437. Shafer, E., Tooby, M. 1973. Landscape preferences: an international replication. Journal of Leisure Research. 5: 60-65.
438. Shakir, Ahmed, ed. Not dated. Sunan al-Tirmidhi. [The collection of Hadith of al-Tirmidhi]. Beirut: Dar al-Kutub al-Elmiah.
439. Sharab, Mohammed Hasan. 1985. Akhbar al-wadi al-mubarak: al-Aqiq. [Legends of the blessed wadi: al-Aqiq]. Medina: Dar al-Turath.
440. Sheppard, Anne. 1991. The role of imagination in aesthetic experience. Journal of Aesthetic Education, 25 (4) : 35-42.
441. Shilling, Chris. 1993. The Body And Social Theory. London: Sage Publications.
442. Shuttleworth, Steven. 1980. The use of photographs as an environment presentation medium in landscape studies. Journal of Environmental Management, 11 (1) : 61-76.
443. Shrady, Nicholas. 1999. Mykonos motifs: a contemporary rendering of traditional Greek forms. Architectural Digest. January, 56.
444. Siddiqui, Elisabeth. 1998. Islamic Art: An Introduction to Islamic Art. <http://www.colostate.edu/Orgs/MSA/docs/islart.html>.
445. Sieda, I. 1988. My Trip to Medina. Akhbar Alyoum.
446. Silberman, N. A. 1989. Between Past and Present: Archaeology, Ideology, and Nationalism in the Modern Middle East. New York: Anchor Books.
447. Silko, Leslie Marmon. 1999. Gardens in the Dunes. New York: Simon & Schuster.
448. Simmons, I. G. 1993. Interpreting Nature: Cultural Constructions of the Environment. London: Routledge.
449. Simmons, I. G. 1993. Environmental History: a Concise History. Oxford: Blackwell Publishers.
450. Simmons, J.C. An American in Saudi Arabia. The Daily News, March 10, 1999. <http://www.dnewsnet.com/leisure/stories/990310011.html#top>
451. Sims, B. 1979. Perceptual Readiness: The effects of environmental experience on ability to image unfamiliar settings. Man-Environment Systems, 9 (July): 209-212.
452. Smith, Peter B. and Bond, Michael H. 1993. Social Psychology Across Cultures: Analysis and Perspectives. New York and London: Wheatsheaf.
453. Sonnenfeld, J. 1967. Environmental Perception and Adaptation Level in the Arctic. Edited by David Lowenthal. Environmental perception and Behavior, Chicago: Department of Geography, University of Chicago.
454. Sonora Desert Museum. 1999. Sense of Place Idea Book of Activities & Resources. [www.http//sonra.com](http://sonra.com).
455. Spens, Michael. 1996. Landscape transformed. In Landscape transformed. London: Academy Group.
456. Spirn, Anne W. 1988. The poetics of city and nature: Towards a new aesthetic for urban design. Landscape Journal, 7 (Fall) : 108-25.
457. Steele, James. 1988. Architectural Monographs: Hassan Fathy. London: St. Martines Press.
458. Steinmetz, Gorge. 1999. Riding the wind: photographing the Sahara from aloft. National Geographic, 195 (March) : 34-39.
459. Stoddard, Lothrop. 1922. The New World of Islam. London: Chapman and Hall, Ltd.

460. Tabbaa, Yasir. 1988. Geometry and memory in the design of the madrasat al-Firdows in Aleppo. Edited by Margaret Bentley Sevckenko. Theories And Principles Of Design: The Architecture Of Islamic Societies, 23-34. The Aga Khan Program for Islamic Architecture.
461. Taboroff, June. 1989. The art of Diplomacy. Landscape Architecture, May.
462. Taha abd-al-Bar. 1984. Al-tajribah al-shieriah wa binauha al-fani. [Poetry and its artistic structure]. Al-Manhal, 46 (5), 57-63.
463. Tawfiq, Mohammed Omar. 1984. Al-asl khairun min al-dhil. [The original is more influential than the shadow]. Al-Manhal, 46 (5) : 238-40.
464. Teague, David W. 1997. The Southern American Literature and Art: The Rise of a Desert Aesthetic. Tucson: The University of Arizona.
465. Teune, H. 1990. Comparing Countries: Lessons Learned. Edited by Qyen, E. Comparative Methodology. London: Sage Publication.
466. The Associated Press. 1999. California Desert purchase vote a head. The New York Times Magazine, 16 November, www.nytimes.com.
467. The Audit Commission for Local Authorities in England and Wales. 1988. Competitive Management of Parks and Green Spaces. London: HMSO Publication Centre.
468. The Comprehensive Encyclopaedia of the Holy Quran's translation of Meanings, Recitation, and Interpretation. Ariss Computer Inc. Beirut.
469. The De Grazia Foundation. De Grazia: Gallery in the Sun, a brochure.
470. The International Wildlife Museum. 1999. Guide Book.
471. The Sayed Idries Shah. 1957. Destination Mecca. London: Rider.
472. Thesiger, Wilfred. 1959. Arabian sands. London: Collins.
473. Thomas, David S., and Middleton, Nicholas J. 1994. Desertification: Exploring the Myth. Chichester: John Wiley & Sons.
474. Thomson, K. 1975. The perception of the agricultural environment. Agricultural History, 49 : 230-37.
475. Thompson, William. 1998. Desert redux. Landscape Architecture, 59 (June) : 59-90.
476. Tinklin, Richard. 1983. An oasis in a sea of farmland. Landscape Research, 8 (1) : 24.
477. Titley, M. M. 1979. Plants and Gardens: in Persian, Mughal and Turkish Art. London: The British Library.
478. Tonna Jo. 1980. The Poetic of Arab-Islamic Architecture. In Building in Hot Climates: a Selection of Overseas Building Notes, Overseas Division of the Building Research Establishment, United Kingdom, 11-15. London: Crown.
479. Townsend, Dounby. 1997. An Introduction to Aesthetics. Oxford: Blackwell.
480. Tract, Stevens. 1999. Fires threaten the Sonoran desert. <http://www.indirect.com/www.csrossi/hike.htm>.
481. Trent, Roger B., Edward Neumann, and Alon Kvashny. Presentaion mode and question format artifacts in visual assessment research. Landscape and Urban Planning, 14 : 225-235.
482. Tuan, Y. F. 1992. Review of The Betweenness of Place: Towards a Geography of Modernity, by J. Nicholas Entrikin. The Geographical Review, 82. (January) : 85-6.
483. Tuan, Yi-Fu. 1964. Mountains, ruins and the sentiment of melancholy. Landscape, Autumn: 27-30.
484. Tuan, Yi-Fu. 1979. Thoughts and Landscape. Edited by Jackson, J. B., and Meining, D.W. The Interpretation of Ordinary Landscapes, Oxford: Oxford university, 89-102.
485. Tuan, Yi-Fu. 1989. Surface phenomena and aesthetic experience. Annals of the Association of American Geographers, 79 (June) : 233-241.

486. Tuan, Yi-Fu. 1993. *Desert and Ice: Ambivalent Aesthetics*. Edited by Kemal, S., and Gaskell, I. Landscape natural beauty and the arts. Cambridge: University Press, 139-157.
487. Turabian Kate L. 1987. A Manual for Writers of Term Papers, Theses, and Dissertations, (5th edition). Chicago: the University of Chicago Press.
488. Turkustani, Mohammed. 1998. Interview by author, Summer, Medina. Written manuscript.
489. Turner, T. 1996. City as Landscape: a Post-Postmodern View of Design and Planning. London: E&FN Spon.
490. Ukashah, Shaief. 1986. Al-sira'a al-hadari fi al-'aalam al-islami: dirasah tahliliah fi flasafat al-hadarah 'end Malik bin-Nabi. [Confrontation of civilisations in the Islamic world: an analytical study of the philosophy of civilisation of Malik bin-Nabi]. Damascus: Dar al-Fikr.
491. Ukashah, Tharwat. 1981. Al-Qiam al-Jamaliah fi al-'Umarah al-Islamiah. [Aesthetic values in Islamic Architecture]. Dar al-M'aarif: Cairo.
492. Ulrich, Roger S. 1977. Visual Landscape preference: a Model and Application. Man-Environment System, 7 (5): 279-293.
493. Ulrich, Roger S. 1983. Aesthetic and Affective Response to Natural Environment. Edited by Altman, I. And Wohlwill J. Behavior and the Natural Environment. New York and London: Plenum, 85-125.
494. United States Bureau of the Census. 1992. Census of Retail Trade 1992, Geographic Area Series, (internet release). Washington D.C.: U.S. Department of Commerce, Economics and Statistics Administration.
495. United States. Bureau of the Census. 1999. Census of the Largest 100 Places, Geographic Area Series, (internet release). Washington D.C.: U.S. Department of Commerce, Economics and Statistics Administration.
496. Vacche, Angela Dalle. 1996. Cinema and Painting: How Art is Used in Film. Austin: University of Texas Press.
497. Vaida, Iuliana Corin. 1998. The quest for objectivity: secondary qualities and aesthetic qualities. The Journal of Aesthetics and Art Criticism, 56 (3) : 283-297.
498. Van Pelt, R. J. 1991. Architectural principles in the age of historicism. New Haven; London : Yale university.
499. Vanderbilt, Tom. 1998. Desert refuge: Steve Martino creates a sanctuary and a sense of place in a Phoenix subdivision. Landscape Architecture, (December) : 18-23.
500. Vining, J. Daniel, E. and Schreder, H. 1984. Predicting Scenic Values in Forested Residential Landscapes. Journal of Leisure Research, 16 (2): 124-135.
501. Vining, J. and Stevens J. 1986. The assessment of landsape quality: mojour methodological considerations. Edited by Richard C. Smardon, James F. Palmer, and John. P. Felleman. Foundations for Visual Project Analysis,. New York: John Wiley and Sons.
502. Vom Bruck, Gabriele. 1997. A house turned inside out: Inhabiting space in a Yemeni city. Journal of Material Culture, 2: 139-173.
503. Wald-al-Shiekh, Mohammed al-Amien. 1987. Khulasat bahth al-tafsier al-'elmi lil-Quran bain al-mujizien wa al-man'eien. [The conclusion of the research: the scientific exegetes of the Quran between approving and disapproving parties]. In Tasiel al-E'ajaz al-'Eelmi fi al-Quran wa al-Sunnah, [invisitations in the scietific miracle of Quran and Prophetic Sayings]: Proceeding of the conference in Islamabad, Pakistan, October, 18-21, 1987, by Rabitat al-'Aalam al-Islami. Mecca: Rabitat al-'Aalam al-Islami, 67-72.
504. Waller, Edmund. 1988. The Diplomatic Quarter. Landscape Design, August : 49-52)

505. Walter, E. J., Savasdisara, T. 1986. Landscape Preference Evaluation and Sociocultural Background: a Comparison Among Asian Countries. Journal of Environmental Management, 22: 113-124.
506. Walters, James E. 1998. Watering basins are an old technique. Phoenix Associated Press, 29 January.
507. Webster, Donovan. 1999. Journey to the heart of the Sahara. National Geographic, 195 (March) : 2-33.
508. Wendell, B. 1990. Why I am Not Going to Buy a Computer, in Teich, A. H. Technology and the Future. (sixth edition). New York: St. Martin's Press. 66-72.
509. Wilde, Oscar. 1891. The new aesthetics. Edited by Feagin, Susan and Maynard, Patrick. 1997. Aesthetics. Oxford: Oxford University Press. 40-45.
510. William Chambers. 1993. From A Dissertation on Oriental Gardening. Edited by Hunt, J. D., Willis, P. The Genius of the Place; The English Landscape Garden (1620-1820). Cambridge and London; The MIT Press.
511. Wolcott, H. et. al. 1983. Perspective on Case Study, Ethnography. Victoria: Deakin University.
512. Wood, Joseph. 1988. Suburbanisation of center city. The Geographical Review, 78 (3) : 325-329.
513. Womersley, David. 1998. Edmund Burke: a Philosophical Enquiry into the Sublime and Beautiful. London: Penguin Books.
514. Yaldram, Su'aad. 1987. Mustanadat al-tawfieg bain al-nusous al-Quraniah wa bain al-nataej al-'elmiah al-sahiha. [Documents of the compatibility between Quranic script and reliable scientific results]. In Tasiel al-E'ajaz al-'Eelmi fi al-Quran wa al-Sunnah, [investigations in the scietific miracle of Quran and Prophetic Sayings]: Proceeding of the conference in Islamabad, Pakistan, October, 18-21, 1987, by Rabitat al-'Aalam al-Islami. Mecca: Rabitat al-'Aalam al-Islami, 37-66.
515. Yang, Byoung-E and Brown, Terry J. 1992. A cross-cultural comparison of prefereces for landscape styles and landcape elements. Environment and Behaviour, 24 (4) : 471-507.
516. Yin, R. (1994). Case Study Research: Design and Methods. Thousand Oaks: Sage Publications.
517. Yu, Kongjian. 1995. Cultural variations in landscape preference: comparisons among Chinese sub-groups and Western experts. Landscape and Urban Planning, 32 : 107-126.
518. Zaied, Mahmoud. 1990. Dirasat al-Tariekh. [study of the history].
519. Zonn, Leo E. Landscape depiction and perception: a transactional approach. Landscape Journal, 144-151.
520. Zube, E. H. 1984. Themes in Landscape Assessment Theory. Landscape Journal, 3 (2): 104-110.
521. Zube, E. H. and Mills, C. V. Jr. 1976. Cross-cultural Explorations in Landscape Perception. Edited by Zube, E. H. Studies in Landscape Perception. Massachusetts: Institute for Man and environment, University of Massacusetts.
522. Zube, E. H., Pitt, D. G. 1981. Cross-cultural Perceptions of Scenic and Heritage Landscapes. Landscape Planning, 8 (1): 69-88.
523. Zube, E. H., Pitt, D. G. and Evans, G. 1983. A lifespan Developmental Study of Landscape Assessment. Environmental Psychology, 3 (2): 115-128.
524. Zube, Ervin H. 1982. An exploration of South-western landscape images. Landscape Journal (1).
525. Zube, Ervin H. 1983. A cultivated dislike for the Egyptian desert. Landscape Architecture, Nov/Dec.

526. Zube, Ervin H. and Christina B. Kennedy. 1990. Urban forests in the desert. Journal of Arboreculture, 16 (April) : 95-98.
527. Zube, Ervin H., and Sheehan, Michele R. 1994. Desert Riparian Areas: Landscape Perceptions and Attitudes. Environmental Management, 18 (3) : 413-421.
528. Zube, Ervin H., Simcox, David, and Friedman, Steve. 1998. Desert riparian landscapes: values and change, 1981-96. Landscape and Urban Planning 42 : 81-89.
529. Zube, Ervin H., Somcox, David. E., and Law, Charles S. 1986. The oasis image in two desert cities. Landscape Research, 11 (3) : 7-11.
530. Zube, Ervin H., Joanne Vining, Charles S. Law, Robert B. Bechtel. 1985. Perceived urban residential quality a cross-cultural bimodal study. Environment and Behaviour, 17 (3) : 327-350.
531. Zwemer, Rev S. M. 1900. Arabia: The Cradle of Islam. New York: Constable.
532. Zwinger, Ann Elizabeth. 1996. What good is a desert ? Audubon, 43 (March-April) : 41-119.