Appendix A: Principal Symbols

β	Power roll-off
ω	Radial frequency
θ	Polar frequency angle
σ	Slant angle
τ	Tilt Angle
ϕ	Direction of propagation ofGabor Filer
λ_0	Correlation length of an isotropic surface
ω_0	Fundamental frequency
λ_1	Correlation length in the x-direction
λ_2	Correlation length in the y-direction
σ_b	Blur
γ_b	Exponent of camera amplification.
ω_c	Cut-off frequency
$\sigma_{disparity}$	Standard deviation of the difference between two images
σ_m	Standard deviation of measure image.
σ_n	Standard deviation of overall noise process.
Σ_n	Covariance matrix of class n
σ_p	Measured polar bandwidth
σ_p	Standard deviation of the Gabor filter spectrum in the x-direction.
μ_r	Mean of Feature image
σ_r	Standard deviation of Feature image.
σ_s	Rms roughness
σ_t	Standard deviation of temporal noise.
σ_x	Standard deviation of the Gabor filter envelope in the x-direction.
σ_y	Standard deviation of the Gabor filter envelope in the y-direction.
σ_y	Standard deviation of the Gabor filter spectrum in the y-direction.
a	Parameter of feature/tilt model.
a b c	Parameters of optimal linear model.
b	Parameter of feature/tilt model.
B_ϕ	Polar bandwidth of the filter.
B(u,v)	Blur function
B_r	Radial frequency bandwidth of the filter.

$c(t)$	Autocovariance function
$d(x,y)$	Measured image data set
$D(x,y)$	Filter Outputs Vector
$d_{f\phi}(x,y)$	Output of Gabor filter f,ϕ
$e(x,y)$	Residue Process
$F(x,y)$	Feature Vector
$f_{f\phi}(x,y)$	Feature Response derived from filter f,ϕ
$G_{\omega\phi}(u,v)$	Gabor filter
$H(u,v)$	Combined filter function
$i(x,y)$	Incident image
i_0, i_{90}, i_{180}	images obtained from τ=°,90° and 180° respectively.
i_d	Desired image
i_{NL}	Non-linear component of surface to image mapping.
i_p	Image which is a linear function of p-derivative field only.
i_q	Image which is a linear function of qderivative field only.
k	Topothesy
$k(F\|l_i)$	Probability that a vector x belongs to class n over the entire tilt range.
$k_1\ k_2\ k_3$	Parameters of Kube's linear model.
$L(x,y)$	Illuminant vector
$l(x,y)$	Label field
m_{fg}	f^{th} and g^{th} order statistical moment.
M_n	Mean vector of class n
m_{rms}	Rms Slope
$n(x,y)$	Noise process
$o(p,q)$	Reflectance function
$p_{\mathbf{F}\|l_i}(\mathbf{F}\|l_i)$	Probability that a vector x belongs to class n
p	Facet slope in the x-direction
p_{rms}	Rms slope in the x-direction
p_x	Second derivative of surface, in the x-direction.
q	Facet slope in the y-direction
q_{rms}	Rms slope in the y-direction
q_x	Second derivative of surface, in the x-direction.
R	Correlation matrix of the surface
$R(u,v)$	Illumination function
$r_c(t)$	Autocorrelation function
R_{cla}	Centre line average
$s(x)$	Surface height profile.

s(x,y)	Surface height
S(x,y)	Surface derivatives
t	Lag
u	Horizontal frequency index
u_0	Centre frequency of filter in the x-direction.
v	Vertical frequency index
V[a b c]	Least squares linear model of the illumination process.
v_0	Centre frequency of filter in the x-direction.

Appendix B

Textures used in Stone 1 Montage

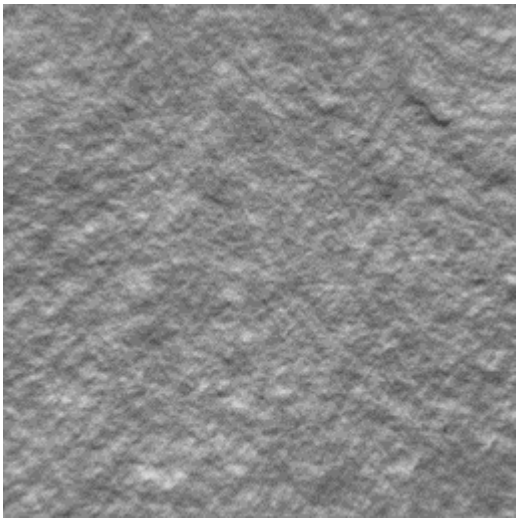
Isoroc

Rock

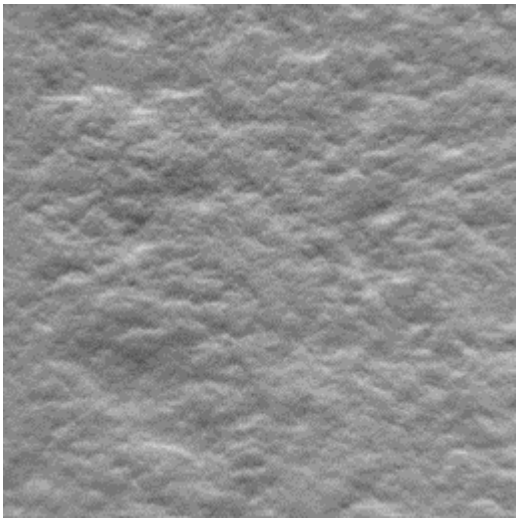
Slab

Striate

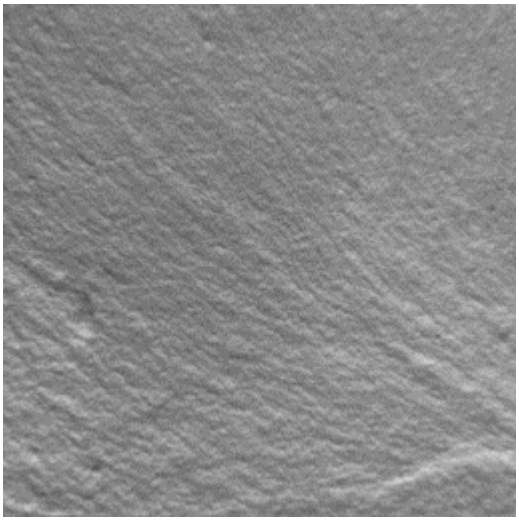
Textures used in Stone 2 Montage



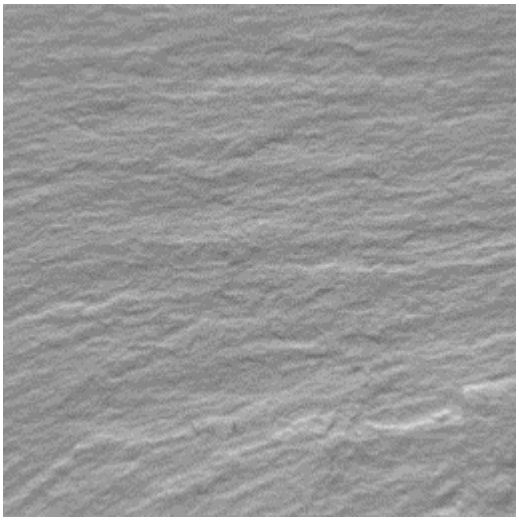
Twins



Pitted



Radial



Slate