

ISO

Effects and use of changing this setting in the camera

Changing the ISO setting on the camera, is effectively the same as changing the film “Speed” in an film camera. The “speed” referring to its ability to gather light, or put another way, to be able to react to the amount of light getting through the lens, via the aperture and the shutter.

If you reduce the aperture or lessen the shutter speed, ie make the aperture smaller and/or the shutter speed shorter, to get an acceptable image onto the sensor or film, will require the ISO setting to be moved up from ISO 200 (or whatever is standard on your camera) to a higher number. This will result in a more sensitive sensor, but at a cost.

When you move the setting upwards, you are not changing the amount of light getting into the camera, this is not possible in a standard camera or lens, what you are doing is increasing the sensitivity of the sensor, and the camera does this by amplifying the data gathered. This results in heating of the sensor and that can result in noise, which shows itself as moriay, ie the coloured pixels in mostly the shadows, but can occur all over the image to a lesser effect, depending on how far the ISO has been pushed and the lack of light. In extreme cases, it will appear all over the image.

This noise is random in colour and position. This is electronic noise, and is effectively the same effect as turning up the volume on your music, at certain levels you will begin to notice a background noise, a hiss or non-musical sound. Its an unwanted signal that is contained in your images. Some sensors are less prone to this, but not immune. Some camera have inbuilt chips that will mitigate the noise effects, but at a cost, they get rid or reduce the noise by slightly blurring the image, resulting in a softening of the detail. Now, this might be acceptable in some subjects, but where you are photographing subjects that have a lot of detail in reduced light, this can be a big problem, and is better addressed in software than hardware.

Generally it is best avoided, but can be used artistically, to add gravitas or other feelings into an image. However an grainy image, that is sharp and has enough Dof is better than no image at all!!!

If you are trying to emulate old photographs by adding “noise” to an image, you need to realise that the “grain” that you are trying to add IS NOT an over-all effect. Grain only appears in the parts of the image (the old image) where it has density, where it is dark, and is also proportional to the density. There is NO NOISE or Grain in the white or clear parts of the image. In other words, you just cant add a layer of noise to the whole image. This is also true of adding a sepia tint to the image, it again is proportional to the density of the under-laying image. The whites are still white!!!, it is only the age of the paper that results in a change in its colour.