

BLOOD CELLS

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INTRODUCTION:

Samples for the amateur microscopist are everywhere, our own body is a source of them, [mouth epithelial cells](#), bacteria from our mouth, sperm, skin samples, hair, etc. and the most common BLOOD.

Blood is easy to get; a small needle, some alcohol and some cotton are needed to get a sample from a finger, just a drop is enough.

We should say that when we take a blood sample the main type of cells that can be seen are erythrocytes because they are abundant and are “naturally” stained because of the pigment they contain called hemoglobin, which is red. There are other types that can be seen as well as erythrocytes and that commonly in a “simple” sample are not observed but with certain techniques available to the amateur it's possible to observe them at home, see below.

In professional labs special dyes as GIEMSA are used to stain samples of blood regularly for medical purposes, but these techniques are expensive for the amateur, so the methods used below, although limited, could be extremely useful.

DEVELOPMENT:

To take the sample of blood just clean any finger of yours with a bit of cotton moistened in alcohol then puncture with a small sterile needle; it could be one of those used by diabetic people for taking a sample for a glucometer, or a needle of a small syringe like those used to administer insulin, which are obtainable over the counter.

After cleaning and puncturing a fingertip spread the sample upon a clean slide, if wanted to observe just erythrocytes that is enough, just place a cover slip and place it under the different lenses of the microscope.

But if wanted to see the other cell types it is necessary to fix the sample with some heat, and for that it is necessary to use a flame of a burner or as in my case a lighter, or a candle.

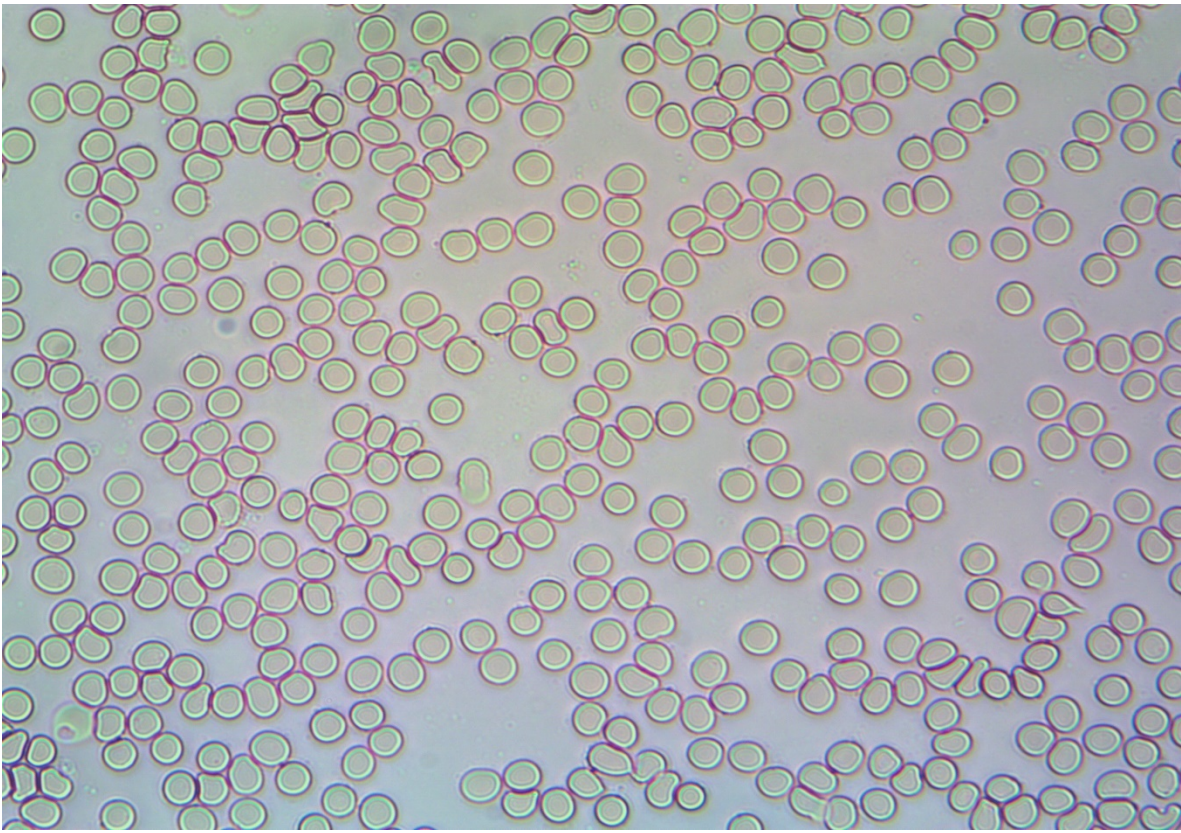
To fix the sample it is necessary to place the slide over the flame several times, until it gets dried, do not expose it to too much heat, just one time because it could break into several pieces.

Once fixed with heat place upon the sample some drops of methylene blue or gentian violet, which are two very useful dyes for the enthusiast to stained both [positively](#) or negatively.

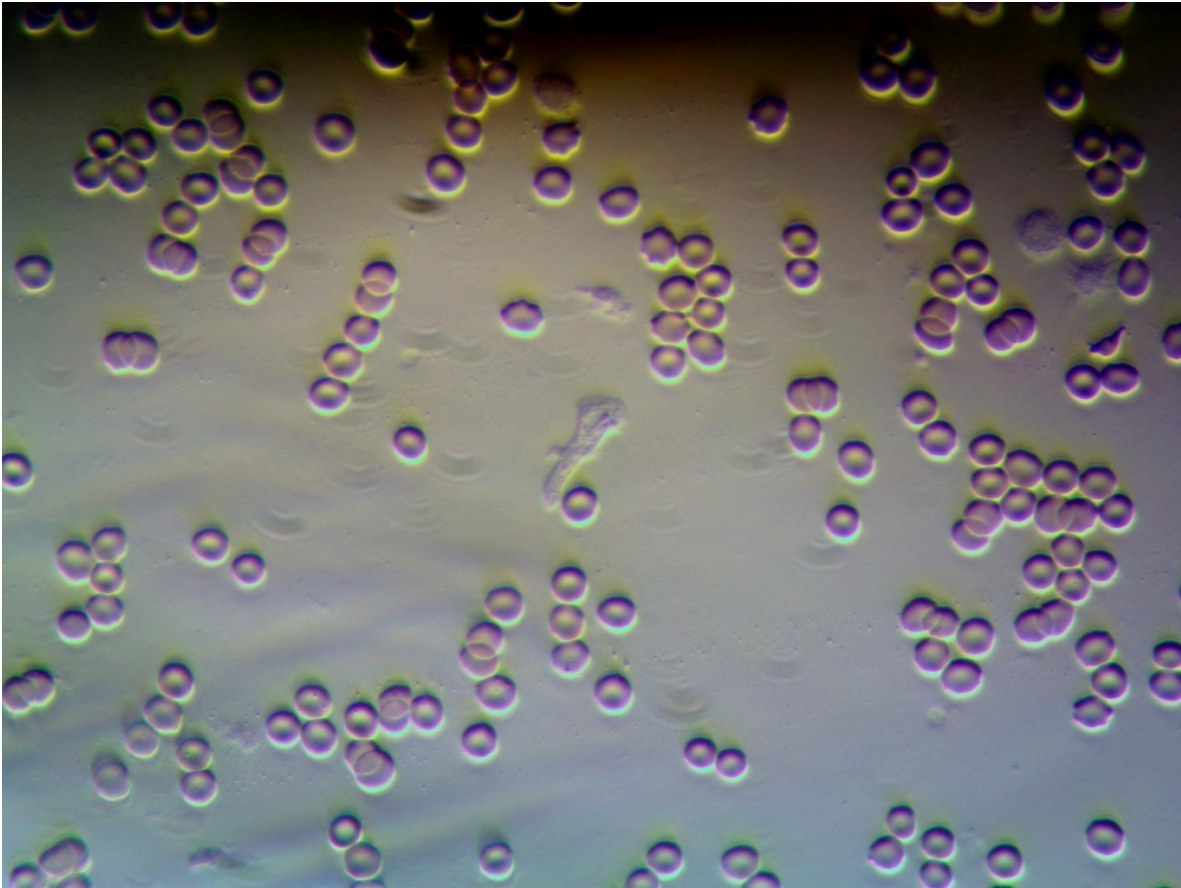


Leave the drop of any of the colorants or both in two different samples for a minute to allow them to enter the cells and then rinse the excess of the dye with clean water. As soon as it is rinsed place a cover slip upon the sample and place it under the lenses of the microscope. To get good results it is important to not let it dry because the good results are obtained with a wet sample. If it dries the white blood cells and the platelets are not appreciated clearly.

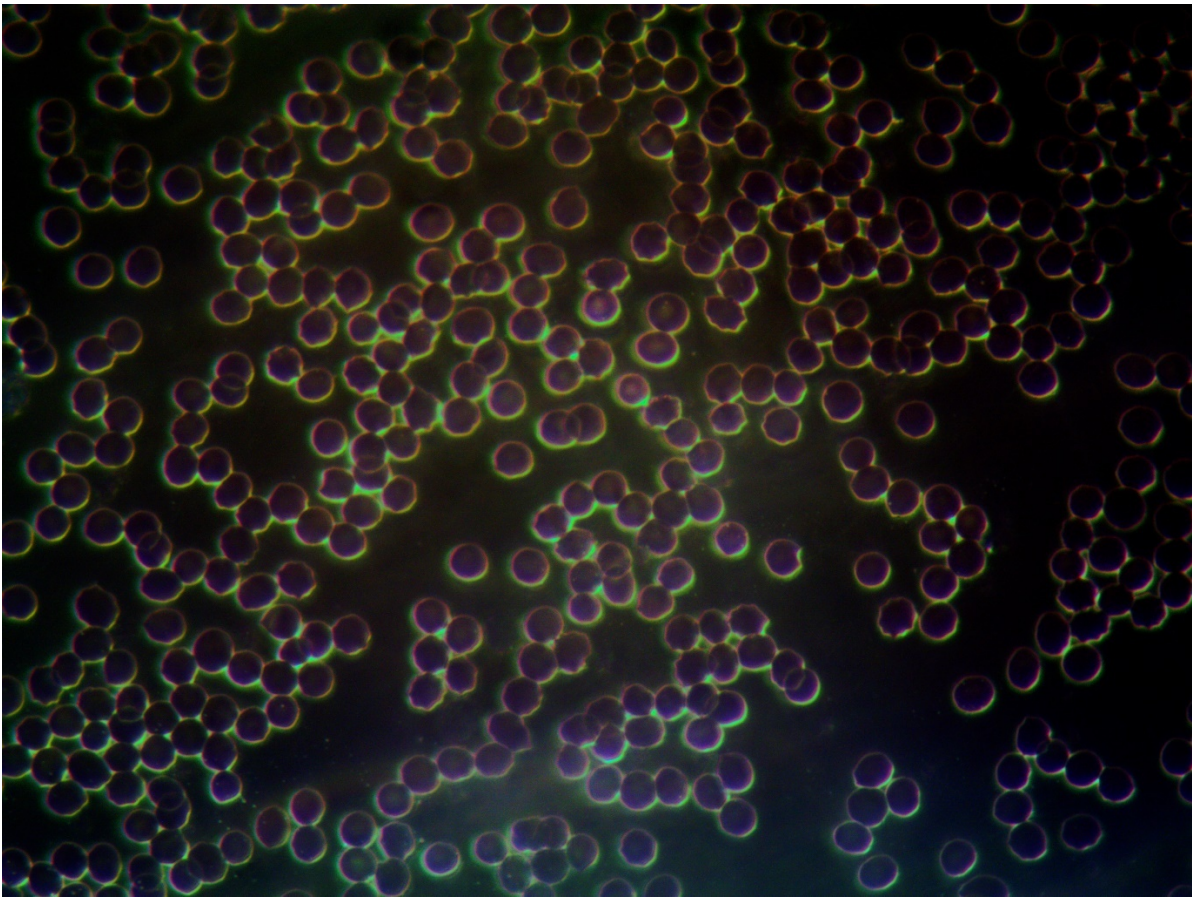
RESULTS:



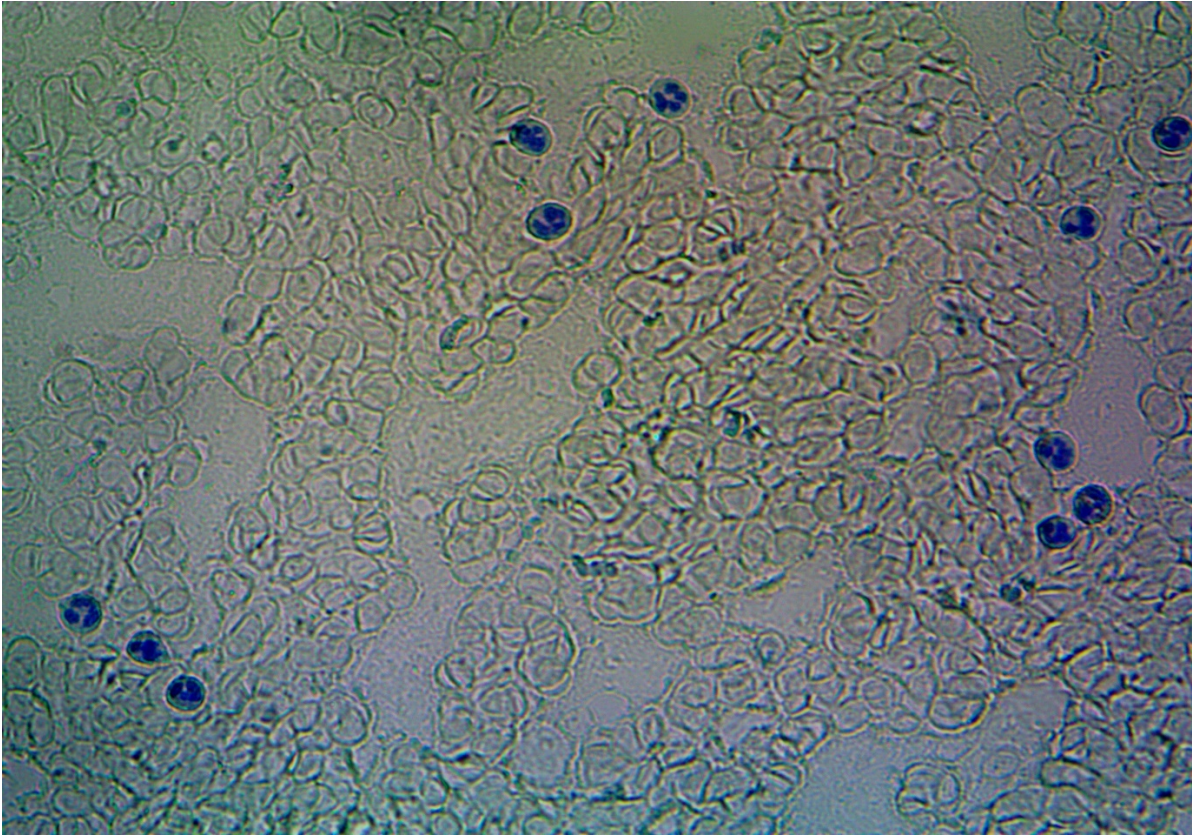
Erythrocytes 40x brightfield illumination, an unstained sample.



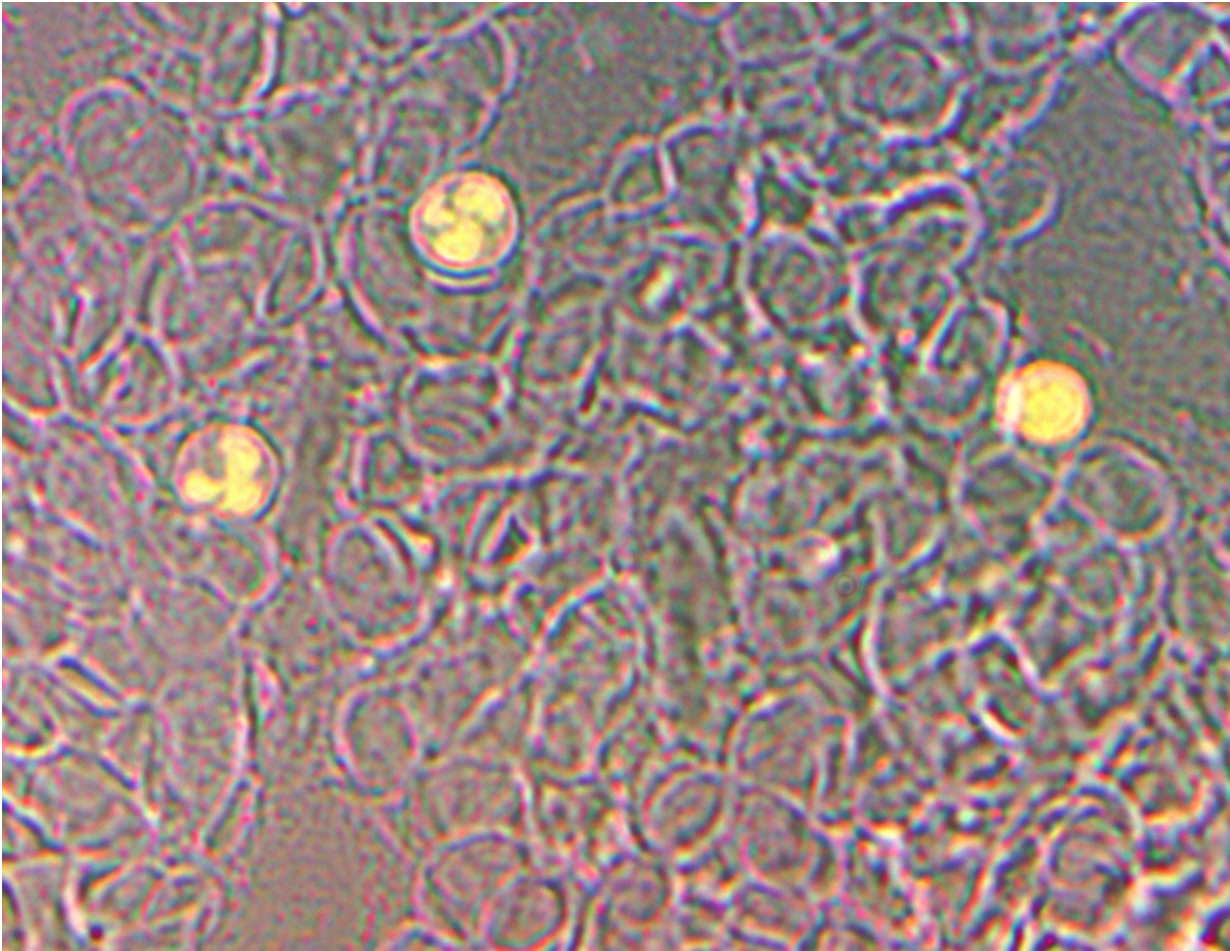
Erythrocytes 40x DIY darkfield, an unstained sample.



Erythrocytes 40x darkfield, an unstained sample.



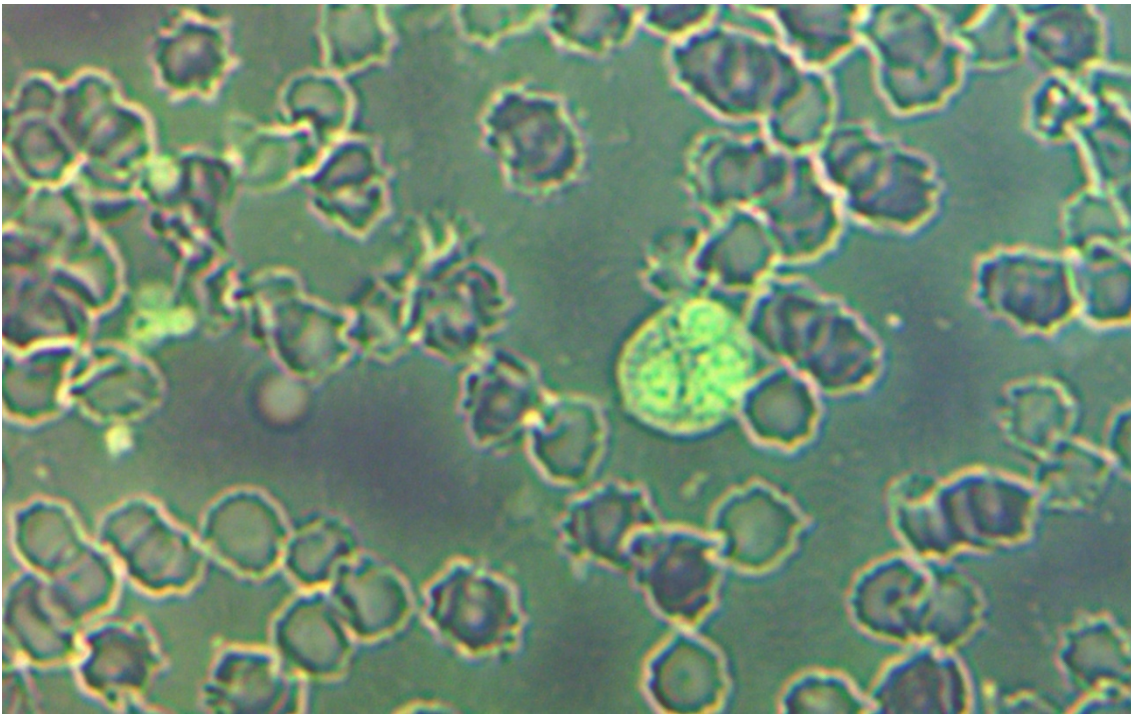
White blood cells 40x bright field illumination stained with methylene blue.



White blood cells 40x bright field illumination stained with methylene blue, with negative effect of the camera.



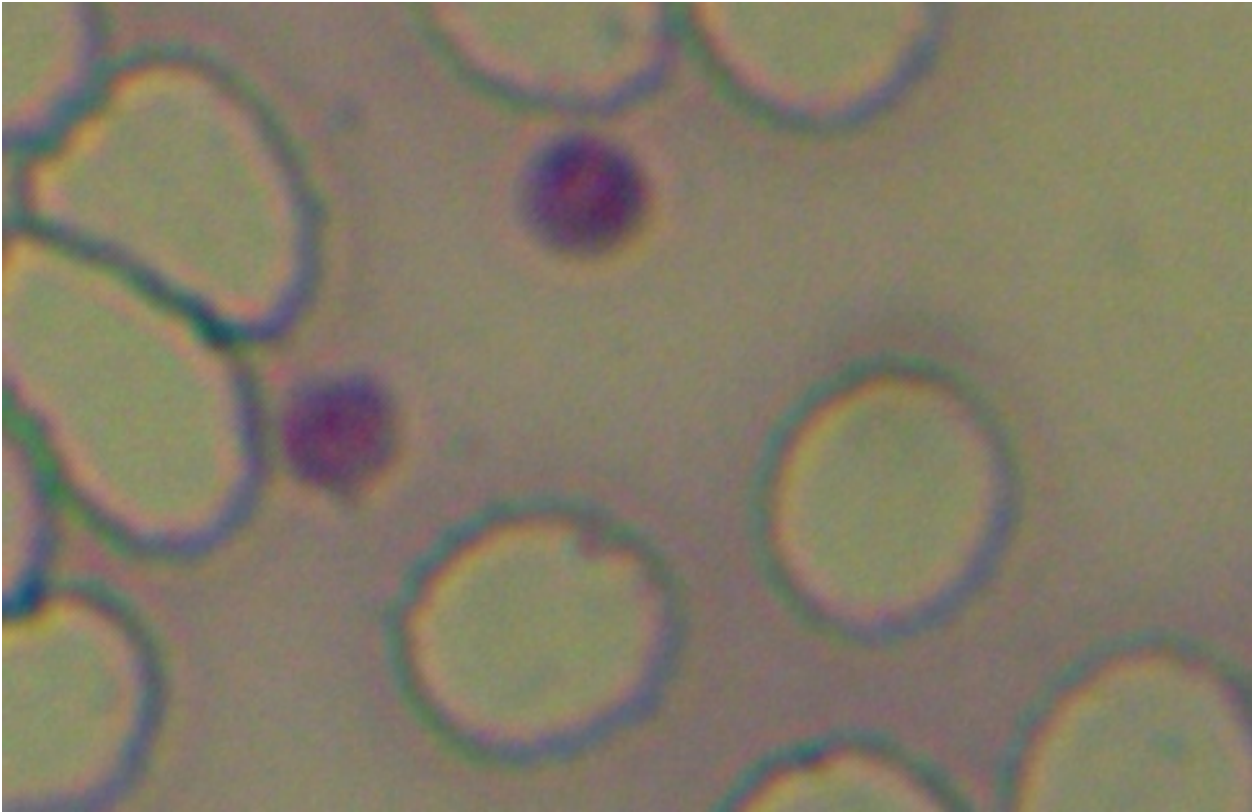
White blood cells 40x bright field illumination stained with gentian violet.



White blood cells 40x bright field illumination stained with gentian violet and negative effect of the camera



Blood platelets 40x bright field, stained with methylene blue.



A pair of platelets 40x bright field, stained with gentian violet.

CONCLUSION:

Observing one's own blood cells is an experience that nobody should miss, it is at hand and very easy to do. It is extremely cheap for the enthusiast microscopist.

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(Above in anti-spam format. Copy string to email software, remove spaces and manually insert the capitalised characters.)

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