In [2]:
```
import numpy as np
```

In [3]:
```
import matplotlib.pyplot as plt
%matplotlib inline
```

In [4]:
```
from PIL import Image
```

In [7]:
```
pic = Image.open('pic.jpg')
```

In [8]:
```
pic
```

Out[8]:

In [10]:
```
type(pic)
```

Out[10]:
```
PIL.JpegImagePlugin.JpegImageFile
```

In [13]:
```
pic_arr = np.asarray(pic)
```

In [14]:
```
type(pic_arr)
```

Out[14]:
```
numpy.ndarray
```

In [15]:
```
pic_arr.shape
```

Out[15]:
```
(2000, 3000, 3)
```

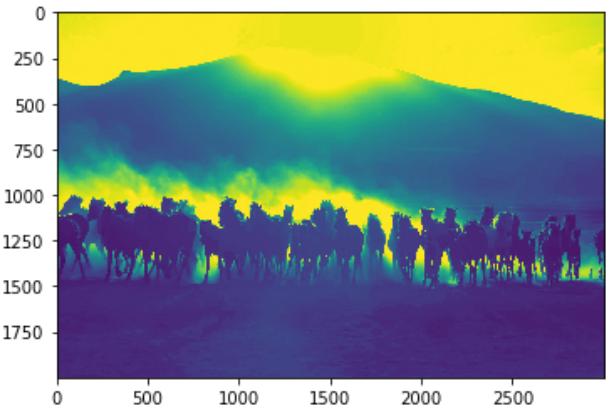
In [17]:
```
pic_red = pic_arr.copy()
```

In [20]:
```
# R G B
pic_red[:,:,0]
```

Out[20]:
```
array([[239, 239, 239, ..., 237, 237, 237],
       [239, 239, 239, ..., 237, 237, 237],
       [239, 239, 239, ..., 237, 237, 237],
       ...,
       [ 42,  42,  42, ...,  47,  47,  47],
       [ 42,  42,  42, ...,  47,  47,  47],
       [ 42,  42,  42, ...,  57,  57,  57]], dtype=uint8)
```

In [22]:
```
plt.imshow(pic_red[:,:,0])
```

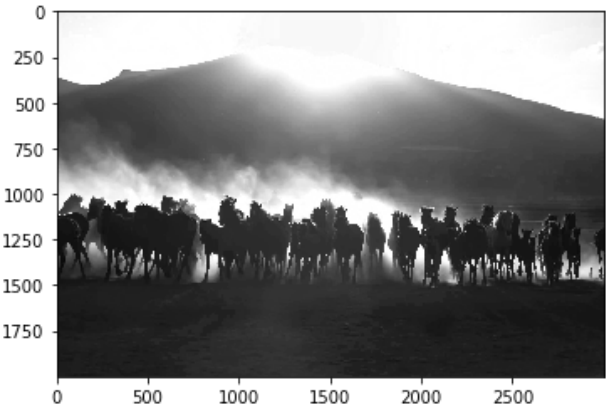
Out[22]:
```
<matplotlib.image.AxesImage at 0x114868790>
```



In [ ]:
```
```

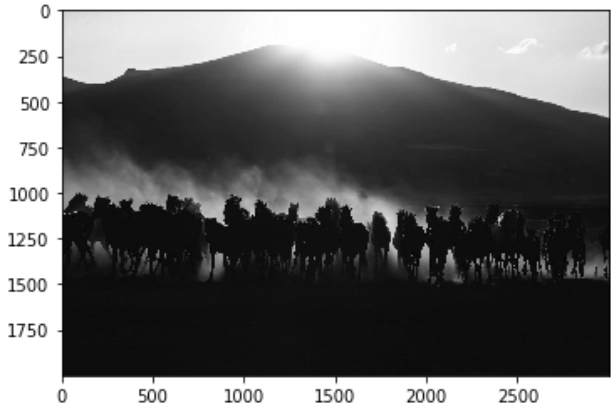
In [24]:
```
plt.imshow(pic_red[:,:,0],cmap='gray')
```

Out[24]:
```
<matplotlib.image.AxesImage at 0x11597b810>
```



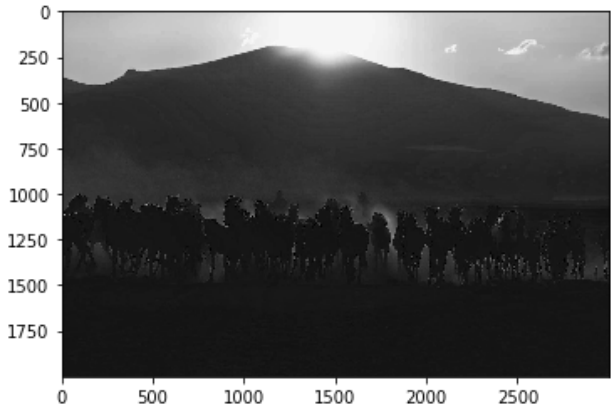
In [26]:
```
plt.imshow(pic_red[:,:,1],cmap='gray')
```

Out[26]:
```
<matplotlib.image.AxesImage at 0x115b28310>
```



In [27]:
```
plt.imshow(pic_red[:,:,2],cmap='gray')
```

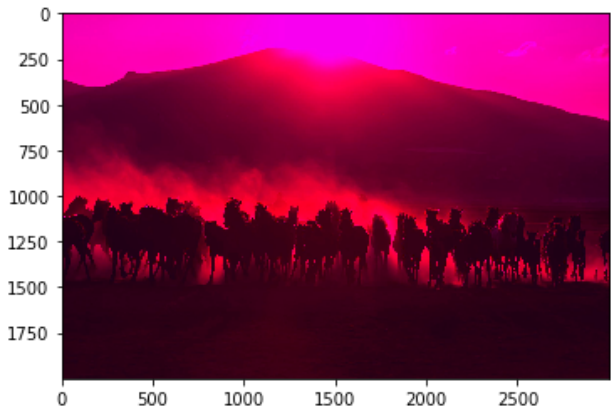
Out[27]:
```
<matplotlib.image.AxesImage at 0x11e4845d0>
```



In [28]:
```
# Remove green channel
pic_red[:,:,1] = 0
```

In [29]:
```
plt.imshow(pic_red)
```

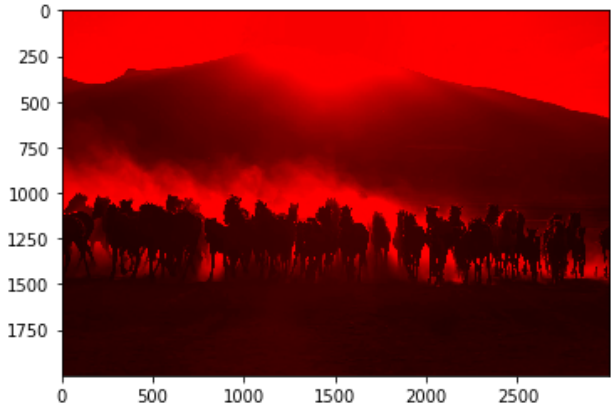
Out[29]:
```
<matplotlib.image.AxesImage at 0x11f82d410>
```



In [30]:
```
# remove blue channel
pic_red[:,:,2] = 0
```

In [31]:
```
plt.imshow(pic_red)
```

Out[31]:
```
<matplotlib.image.AxesImage at 0x109c81b90>
```



In [ ]: