The Physiological Conditions of Attention -
These seem to be the following:
1) The appropriate cortical centre must be excited ideationally as well as sensorially, before attention to an object can take place.
2) The sense-organ must then adapt itself to clearest reception of the object by adjustment of its muscular apparatus.
3) In all probability, a certain afflux of blood to the cortical centre must ensue.
Of this third condition I will say no more, since we have no proof of it in detail...

(William James, Psychology: Briefer Course, 1892.)
Responses to Visual Stimulation

The Colliculus Makes It to the Small Screen!

Multisensory Integration Occurs in the Deep Layers of the Superior Colliculus

from King (2014)
Collicular Neurons Show Non-additive Multisensory Interaction Effects

Stein & Stanford (2008)

Multisensory Integration Occurs in the Deep Layers of the Superior Colliculus

http://medicine.creighton.edu/medschool/neural/labs/Lab5-6/10.html

Recording Neuronal Activity in Awake Rats

Recording Neuronal Activity in Awake Rats
Multimodal Integration in the Superior Colliculus of Awake Rats

Sensory Processing Depends on the Behavioral Context

Neuronal Activity Related to Direction of Head Movements

Colliculus Units (45%) Show Reward-Related Activity in a T-Maze Task

- Weldon, Edwards, Green, Arbouet, & Kocivar (1992)
Is SC Activity in the Goal Box Due to Motor Movements or Sensory Stimulation?

Is SC Activity in the Goal Box Due to Motor Movements or Sensory Stimulation?

SC Activity during Reward Retrieval is Not Due to the Execution of the Movements

Responses of SC Neurons are Not Due to an Increase in Sensory Responsiveness

Some Superior Collicular Cells Code for Magnitude of Reward

Weldon, DiNieri, Silver, Thomas, & Wright, (2007)

Weldon, DiNieri, Silver, Thomas, & Wright, (2007)

Weldon, DiNieri, Silver, Thomas, & Wright, (2007)
Some SC Cells Show Activity That Is Correlated with Head Movement

Weldon, Patterson, Colligan, Nemeth, & Rizio (2008)

Some SC Cells Are Inhibited During Food Retrieval

Weldon, Patterson, Colligan, Nemeth, & Rizio (2008)

Some Neurons Code for Magnitude of Liquid Reward

Patterson, Colligan, Nemeth, Rizio & Weldon (2006)

The Superior Colliculus Participates with Other Brain Areas During Sensorimotor Integration


http://www.iberico-iberico/index.html
Connections from the Caudate Nucleus Disinhibit Collicular Cells to Elicit Saccadic Eye Movements

Striatal Cells Facilitate Collicular Sensory Responses

Collicular Connections to the Striatum Might Provide Short Latency Information Regarding Salient Stimuli

Conclusions

1. Neurons in the superior colliculus are dynamically involved in visuomotor orientation.
2. Collicular sensory responsiveness changes as a function of the behavioral context.
3. The presence and magnitude of reward affect collicular activity.
4. Thus, the superior colliculus is probably involved in processing of salient behavioral events, in part via connections with the striatum.
Collaborators

Philip J. Beest
Sascha I. Airamou
Ern A. Collgen
Jennifer A. DiNieri
Robert R. Marrand
Tamara J. Green
Tamara L. Insol
Christina L. Nemeth
Carly A. Patterson
Jennifer L. Petrie
Kimberly M. Pradell
Avery A. Pino
Matthew R. Silver
Alice A. Thomas
Rebecca E. Wright