are observed in which the penumbra alternately expands and contracts on both sides of the umbra. Since such changes are also frequently accomplished without any apparent effect on the striation of the penumbra, the question may be asked whether they are real or illusionary. The writer believes that all such changes, in which the striation is not affected, are only apparent and due to the masking effects of flocculi moving above the penumbra.

The striation of the penumbra may be used to separate real from apparent changes quite readily. Remembering that this whole structure is gaseous, it is clear that any profound alteration in the penumbra itself will certainly affect the striation by disturbing the currents which produce it.

Consider the case of a spot which suddenly appears to be dichotomized, say 24 hours after first observation, the penumbra appearing to vanish on one side while it remains whole and unaffected on the other and with no sensible disturbance of the striation in the visible half. Assuming such a change to be real we would have to believe that a vortex existed in which there was an indraught *only from one side,* an obvious impossibility.

The simplest explanation for such an appearance (by no means rare) is that some bright, opaque screen has come between the penumbra and the eye of the observer. This is most strongly suggested when the missing half of the penumbra reappears, the striation in the unaffected half meanwhile remaining undisturbed.

In order to cause apparent changes in the shape and area of the penumbra, without actually altering it physically, it seems clear that the agent effecting the apparent change must be in the nature of a screen superimposed upon but at a considerable altitude *above* the spot. Indeed the phenomenon is analogous to the projection of prominences on umbrae, which give rise to the bright bridges often observed; but the difference in volume between the slender umbral filaments and the obscuring masses which blot out whole areas of the penumbra make it fairly certain that the latter are floccular in nature. By learning to distinguish between physical changes in the penumbra and those caused by obscuring flocculi, it is thus possible to study their local movements by direct vision.

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PERTUSSIS IMMUNE ROOSTER SERUM

AS a member of the American Association for the Advancement of Science I am greatly interested in the current article by Hilleman and Gordon in SCIENCE for October 15, 1943, relative to the preparation of a protective rooster antiserum against mouse pneumonitis virus.

I wonder whether or not the authors are familiar with the work of Dr. John Bailey, of the University of Indiana,[1] who in 1933 described an anti-serum of high potency produced in the rooster by repeated intraperitoneal inoculations of suspensions of live *H. pertussis.*

Bailey's serum was effective in alleviating to a considerable degree the paroxysmal cough in the early stages of pertussis in a limited number of children when administered intramuscularly. However, local reactions were at times severe and wide-spread usage of the serum was not attempted.

Three years ago I again became interested in the rooster as a possible source of immune serum particularly against type b *H. influenzae* for the treatment of influenzal meningitis in children, as past experience had demonstrated the failure of chemotherapeutic agents and antisera in the treatment of this disease. Approximately two years ago I submitted a problem to the research committee of the Michael Reese Research Foundation, Chicago, involving an attempt to produce a potent rooster immune against type b *H. influenzae* for the treatment of influenzal meningitis. The initiation of this work was curtailed when I entered the Army.

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A PROPOSAL CONCERNING THE KILGORE BILL

BECAUSE its arguments were based on generalities L. A. Hawkins (SCIENCE, January 14) criticizes my letter on the Science Mobilization Bill (SCIENCE, November 26, 1943). Since I was attempting to answer an earlier letter of Dr. Harlan T. Stetson (SCIENCE, October 22, 1943), to whose generalizations I objected, my reply was not an answer to specific objections to the bill.

Mr. Hawkins's interpretation of my remarks perverts my meaning and intention, perhaps because they were not clear. However, instead of offering specific answers to his specific objections to my general statements, I urge opponents and proponents of the bill to direct their efforts in exactly the manner he desires. If the less informed scientific public could have before it objective and specific analyses prepared by competent persons of divergent views, I believe the formulation of sound judgment would be hastened. I suggest, therefore, the publication and wide circulation of specific objections and specific answers to them.

[1] *Jour. of Infect. Dis.* 52: 97, 1933.