pathways may exist which are never normally traversed.

Only one explanation of the restoration of function is offered in the article under consideration, *i. e.*, that the subcortical arcs are the more primitive and are sufficiently retained in adult pigeons after decerebration to make possible the carrying out of normal drinking reactions.

Another explanation is also possible. Many writers have claimed that certain habits, arising in the first instance through activities involving the cortex, later are passed on completely to subcortical centers. As Herrick[3] points out, these acquired automatisms may so closely resemble inherited reflexes as to be indistinguishable in the absence of the history of their development. If it is here assumed that the drinking reaction established during the life of the pigeon is transferred in large part to subcortical structures, its retention after decerebration would seem to be expected, while in the case of the chick, decerebrated before such reactions were built up, no such appearance could be looked for. It might also be argued that the feeding reaction, being more complicated, was not so completely transferred from the cortical region as to be effective after decerebration.

That such an assumption may be justified is indicated by the work of Franz and Lashley[4], who found from numerous careful experiments with white rats that extensive cortical lesions did not usually affect the retention of most habits due to previous training, nor did they prevent the formation of new habits. The authors also report that in the cat and monkey where the frontal portion of the cortex is normally utilized in the formation of certain habits, these habits, if long practiced, are still carried out in the ordinary way after the ablation of the frontal cortex. This work as well as its continuation by Lashley[5] clearly shows that the classical picture of the decerebrate animal is in large measure erroneous and must be carefully revised and with it the entire conception of the physiology of the central nervous system. Any contribution to this promising and important field is to be welcomed.

[3] *Introduction to Neurology*, 2d ed., p. 336.

[4] *Psychobiology*, Vol. 1, p. 71, 1917.

[5] *Psychobiology*, Vol. 2, p. 55, 1920.

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THE BITE OF LACTRODECTUS MACTANS

IN SCIENCE for January 13, F. R. Welsh writes on "Poisonous Spiders." In regard to the "Black Widow," *Lactrodectus mactans*, he quotes Dr. McCook as of the opinion that the bite of this spider is "in most instances of small consequence." During the past two years the writer has had called to his attention four cases of attacks by this spider on human beings. These were all reported by practising physicians who sent in the spiders for identification. All four cases were those of men who were bitten on the penis while using outside closets. In every case the results were of a very serious nature. The patients suffered intense pain accompanied by severe abdominal disturbances, convulsions and delirium. In one case the abdominal pain was so intense and pronounced that the patient who had been sent to a hospital in a distant city was, upon arrival, promptly operated upon for appendicitis. The severe symptoms lasted from twenty-four hours in one man to over a week in the case of another. In a third case the physician reported four days after the patient had been bitten that he was "not yet out of danger." However all ultimately recovered. Two of these men were bitten the same day in the same closet and presumably by the same spider, indicating that the spider does not exhaust her venom by one bite.

These experiences would indicate that the bite of this species, at least when administered in a tender part of the body, is very serious, exceedingly painful, and even dangerous.

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WATER-IMMERSION OBJECTIVES

I WISH to call the attention of those biologists who use the microscope to the value of the much neglected water-immersion objective. Its inferiority to the oil-immersion in the matter of numerical aperture, and consequently in power of resolution, has led many microscop-

ists to lose sight of its peculiar advantages for certain kinds of work. The lower angular aperture obtainable with water contact as compared with cedar oil, is compensated for in several ways: first, it gives a longer working distance, due to the necessarily narrower angle of illumination,—a very important thing in high magnification. Second, it gives correspondingly better penetration of the object examined. Third, there is the ease with which both the slide (*i. e.*, the object) and the objective are cleaned. A bit of blotting-paper touched to the objective and the slide is all that is necessary and the mount is ready for further examination with lower magnification. But with an oil-immersion the oil must be first removed before a clear image can be had with lower powers, and this takes time and skill. In fact, if the mount is a temporary one and the cover-glass not held in place by a cement ring or hardened balsam, the cleaning is no job for a careless man. Fourth, where the mount is in water the water-immersion objective is free from the annoying habit of dragging the cover-glass over the specimen when the slide is moved,—a fault of the oil-immersion due to the greater viscosity of the oil connecting objective and cover-glass over that of the water connecting cover-glass and slide. In freshly studied marine mounts this is a big item. Finally the lower cost of the water-immersion objective is a factor well worth consideration.

It should be added, where oil contact between substage condenser and slide is omittted, a very frequent oversight with microscopists, the superiority of resolution of an oil-immersion objective, due to its greater N. A., is lost and the difference between it and a water-immersion disappears.

The only excuse for any immersion objective is that very high magnification and resolution are impracticable with dry objectives because of the working distance and the angle of illumination involved. For this reason it seems to me there is little excuse for immersion objectives below the one twelfth inch English scale or the 2 to 1.8 mm. standard scale.

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QUOTATIONS

HEALTH ORGANIZATION OF THE LEAGUE OF NATIONS

AN important branch of the work of the League of Nations is that of its health organization. The International Health Conference which was held in London in April, 1920, declared that the epidemic situation was menacing to all Europe, and that the task of fighting epidemics was beyond the strength of voluntary associations. The conference urged, therefore, that the task should be entrusted to the League of Nations as the only official international organization with sufficient authority and power to undertake the work. In accordance with this recommendation an Epidemics Commission was set up by the Council of the League, and since the end of 1920 this commission has cooperated with the Polish health authorities in their campaign against epidemics. The commission, at the head of which was Dr. Norman White, formerly sanitary commissioner with the government of India, had complete autonomy, but was responsible to the Council of the League. The funds placed at its disposal by the governments which are members of the league were not large enough to make possible an anti-epidemic campaign on the scale originally planned, so the commission began its work in Poland, and delivered to the Polish health authorities the motor transport, soap, clothing, medical stores, etc., most needed at the outset of the campaign; it also provided funds for the repair and equipment of bathing and disinfecting establishments, quarantine stations, and hospitals, and gave fifty complete fifty-bed hospital units. The work of this commission was the first experiment in international sanitary cooperation on a large scale, and it has been a success. Last autumn, however, the epidemic situation in Russia, and the consequent danger to her western neighbors, became greatly aggravated on account of the famine, and more drastic measures were found necessary to deal with the situation. An all-European anti-epidemic conference was therefore convened by Poland at Warsaw, with the approval of the Council of the League of Nations, and twenty-seven different nations took part. It was notable as being the first general