mus, but none reduced nitrates. None digested coagulated blood and none liquefied gelatin. Lead acetate agar was not blackened and no indol was formed.

Antisera prepared against our strain agglutinate the Murray, the Pirie and the Gibson strains in about the same dilutions of serum (1:5120); while the same antisera agglutinate the Burn and the Seastone strains only in low dilutions (1:80 to 1:160). Sera produced against the Burns and Seastone strains agglutinate these strains in high dilutions, but the Murray, Pirie, Schultz and Gibson strains only in low dilutions or not at all. These observations harmonize with previous reports (Seastone,[9] Webb and Barber[11]) and confirm the fact that the New England strains, while morphologically, culturally and biochemically similar to our strain and to the British strains, differ serologically.

No Listerella infections in animals have thus far been reported on the Pacific Coast, and the source of the infection in our case has remained a mystery.

While this report was waiting to be written up, an account of a comparative study of some of these Listerella strains by Webb and Barber[11] appeared This note confirms and supplements their observations.

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Suppression of *Pars Intermedia* of Pituitary Body in *Hyla regilla* by Operations Upon the Gastrula.

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The dual character of the pituitary body and the constant association of its neural and epithelial components throughout the vertebrate sub-phylum, have raised the question of whether or not association of the components is necessary for the development of the gland. Blount (1930), Etkin (1935) and Atwell (1935, 1936) have contributed toward the solution of the problem by means of grafting experiments, performed upon tail-bud stages of early larvae of various amphibian species. This paper is a preliminary account of results obtained by means of a different attack upon the problem.

Smith (1916), Allen (1916) and Atwell (1919) have shown

that hypophysectomy in the early anuran larva produces a pigmentary condition which is characterized by aggregation of the melanin granules in the melanophores, dispersion of the pigment granules of the Xantholeucophores and a general reduction of free melanin in the epidermis. Such tadpoles are silvery-white in appearance and have been described as "albino". This pigmentary condition has been shown to prevail in the absence of the *pars intermedia* of the pituitary body.

It has been possible to produce the *pars intermedia* deficiency syndrome in tadpoles of *Hyla regilla* in 2 different ways, by microsurgical operations made as early as the gastrula stage.

In the first operation a small, rectangular piece of tissue, including the 3 germ layers, is removed from the presumptive medullary region, at a position approximately 95 degrees forward from the dorsal lip of the closing blastopore. This piece of tissue, the width of which is about one-fifth that of the gastrula, is turned end for end and reimplanted. Thus the lateralities of the tissue are reversed, but more important in this connection is the fact that originally anteriorly situated materials are shifted to a more posterior position and *vice versa*. Tadpoles derived from these gastrulæ are "albino".

Microscopic sections of these experimental larvæ reveal that the infundibular region of the brain has been shifted to a position posterior to its normal location, and forms from the floor of the myelencephalon instead of from the diencephalon. In the course of development, the *pars buccalis* arrives at its definitive location, at the anterior end of the notochord, but fails to reach the infundibulum. The *pars buccalis* remains as a small, darkly staining, comparatively undifferentiated mass of tissue. This microscopic picture has been found in every one of 14 serially sectioned larvæ which had been picked at random from a total of 67 experimental "albinoes".

A second series of experiments, which also causes the *pars intermedia* deficiency syndrome involves the transplantation of the gastrular anlage of the *pars buccalis*. By means of vital staining technic this anlage has been located at a position in the midline of the embryo, approximately 160 degrees forward from the dorsal lip of the blastopore. The presumptive *pars buccalis,* together with its substrate, is excised and interchanged with a small square of tissue taken from the dorsal side of the gastrula a short distance anterior to the dorsal lip of the blastopore. This latter piece of tissue includes the 3 germ layers.

Microscopic sections of tadpoles derived from these gastrulæ

show the *pars buccalis* to be entirely lacking in its normal location beneath the infundibulum. It is present, however, as a distant and characteristic body of cells closely applied to the floor of the myelencephalon, where it appears to have induced an hyperplasia of the adjacent tissue of the hindbrain. At this position, a section of the notochord is missing, but this segment of the notochord is to be found just anterior to the infundibular recess, beneath the forebrain. It is to be remembered that the rudiment of this piece of chorda was placed in the position normally occupied by that of the *pars buccalis* in the gastrula stage. Since at that time chordal material was irreversibly determined, its occurrence in this anterior situation was to have been expected.

By the first experiment it is shown that prevention of contact between the *pars buccalis* and nervous tissue, by microsurgical intervention at an early embryonic stage, is equivalent to removal of the *pars intermedia* at a later stage, since the development of the *pars intermedia* is suppressed. The second experiment establishes the location in the late gastrula of the presumptive *pars buccalis,* and indicates that the neural tissue necessary to cause the differentiation of the *pars intermedia* is more or less specific. Although it cannot be said at this time that the infundibular region of the brain possesses the inductive power exclusively, it is believed that tissue with this power must be similar to that of the infundibulum. It is suggested that the ependymal cells may have this capacity.

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Adrenal Cortical Hormone (Cortin) in Blood and Urine of Patients with Cushing's Disease.*

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Evidence has been accumulating which tends to support the hy-

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