

1334 CONDITIONS DETERMINING MELANOSIS OF PAPILLOMAS

TABLE II.

Type of Case	Age	Reaction to Rickettsia Suspension	Reaction to Proteus X19 Filtrate	Interval between Infection and Test	Size of Reaction cm.
Recovered	19	++	—	2½ yrs.	4
"	40	++	—	1 yr.	2
"	46	++	—	4 "	2½
"	41	+	—	3 "	1½
"	55	+	—	4 "	1
"	38	++	—	4 "	3
"	55	+	—	4 "	1
"	46	+	—	5 "	1
* " T.A.O.	53	+	—	6 mos.	1
* " T.A.O.	47	+	—	8 yrs.	1
Convalescent Typhus	38	++	—	1 week	2½

*Had symptoms of thrombo-angiitis obliterans.

and the time of the test. Although this series is a small one, these findings suggest that the skin sensitivity lasts a considerable length of time. Whether or not this constitutes an evidence of a latent infection with Rickettsia bodies must as yet be determined.

8083 P

Conditions Determining Melanosis of a Virus-Induced Rabbit Papilloma (Shope).

J. W. BEARD. (Introduced by Peyton Rous.)

From the Rockefeller Institute for Medical Research, New York City.

The Shope papilloma, a growth caused by a virus¹ and having the immediate characters of a tumor,² is frequently colored gray, brown or black with melanin.¹ Bits of the proliferating tissue when implanted in the leg muscles and viscera of the host grow vigorously, and portions of the resulting mass are often melanotic, and occasionally it is darkly pigmented everywhere.² This paper is concerned with the conditions determining the pigmentation.

The possibility that certain strains of the causative virus determine the pigmentation was investigated first. Two virus suspensions were prepared from glycerinated fragments of 2 peritoneal autotransplants in a wild rabbit. One of the growths was coal black, the other unpigmented. The suspensions were inoculated by tattooing them into numerous spots in the shaved skin of the sides

¹ Shope, R. E., *J. Exp. Med.*, 1933, **58**, 607.

² Rous, Peyton, and Beard, J. W., *J. Exp. Med.*, 1934 **60**, 701.

of 2 cottontail rabbits, 4 brown-gray or agouti rabbits of domestic breed and 2 of the Dutch variety (show type). These last had white hair on the anterior half of the body, black hair on the posterior, and the inoculations were made into both regions. All of the papillomas that arose in the "white" regions were devoid of pigment, whereas all those in the "black" were gray or sooty, irrespective of the derivation of the inoculum. The results in the other animals corroborated these findings.

In the animals just considered, as well as in many others inoculated with other strains of the virus, melanotic papillomas developed only where the hair was pigmented. This distribution of the pigmented growths corresponded absolutely with that of melanoblasts or potential melanoblasts in the skin of the rabbit. That melanotic papillomas arise only where such cells are present was shown even more clearly in frozen sections of early stages of growths induced in the skin of the ear. The staining was with dopa (3,4-dioxyphenylalanin).³ When the first epithelial thickening took place, melanoblasts similar to those nearby in the unaffected epidermis proliferated in the basal part of the papillomatous epithelium and often became extraordinarily abundant, and black with pigment. When the papilloma developed where no melanoblasts were present, none appeared in it later. They were never observed in the growths of albino rabbits. Where they were present to begin with in certain parts of large papillomatous areas, they remained localized to these parts, the rest of the growth never becoming pigmented. Melanoblasts were not seen in the corium, but chromatophores laden with melanin made their appearance under old pigmented growths. The implantation in the viscera of bits of the wholly pigmented growths gave rise usually to nodules that were only partially melanotic.

All of the papillomas have the same histology, except for the presence of melanoblasts and melanin in some of them. They are epithelial growths with a pigmentation which is secondary to the epithelial proliferation. Histologically, they are wholly unlike the melanomas composed primarily of melanoblasts or related cells. In the papilloma the relation of the melanoblasts to the epidermal cells is similar to that found occasionally in regenerating epidermis, in psoriasis, molluscum contagiosum and in the papillomas of man and other animals. No growths composed predominantly of melanoblasts were encountered, nor was evidence obtained of any direct effect of the virus upon them.

³ Laidlaw, George F., and Blackberg, Solon N., *Am. J. Path.*, 1932, **8**, 491.

In 7 of 10 domestic rabbits kept for 7 months or more, cancers arose in pigmented Shope papillomas.⁴ Some of the cancers were papillomatous, but none of their cells reacted with dopa.

From these observations it is plain that the pigmentation of Shope papillomas is not determined by the strain of virus inducing the growths but by the epidermis upon which it acts. Where melanoblasts are present pigmented growths arise because these cells become involved in the pathological process though not themselves affected by the virus.

8084 P

Colony Morphology of Tubercle Bacilli. II. Influence of pH of Culture Medium on Colony Morphology and Virulence.

KENNETH C. SMITHBURN.

*From the Laboratories of the Rockefeller Institute for Medical Research,
New York.*

Extensive studies have been made with reference to the range of pH in which tubercle bacilli will grow and the changes in pH which take place during growth on fluid medium. These studies have been reviewed by Wells and Long.¹ Recently Birkhaug² has studied the changes in pH induced in fluid medium during growth of R and S forms of avian and mammalian tubercle bacilli. However, the influence of pH on colony morphology of Mycobacteria has been less extensively investigated. Steenken, Oatway, and Petroff³ found that R colonies of degraded virulence were characteristic of the growth at pH 6.1 on either Petroff's or Calmette's medium; whereas Petroff's medium at pH 7.2 supported the growth of S variants of greater virulence. Recently it was observed in this laboratory⁴ that by adjusting the pH of Corper's medium to various values, three principal types of colonies could be obtained: rough, smooth, and intermediate. The present report is an extension of the latter work.

⁴ Rous, Peyton, and Beard, J. W., *PROC. SOC. EXP. BIOL. AND MED.*, 1935, **32**, 578.

¹ Wells, H. G., and Long, E. R., *The Chemistry of Tuberculosis*, 1932, The Williams and Wilkins Company.

² Birkhaug, K. E., *Ann. Inst. Pasteur*, 1935, **54**, 19.

³ Steenken, W., Jr., Oatway, W. H., Jr., and Petroff, S. A., *J. Exp. Med.*, 1934, **60**, 515.

⁴ Smithburn, K. C., *J. Exp. Med.*, 1935, **61**, 395.