showed little if any perivascular lymphocytic infiltration. The Kupffer cells were not enlarged, nor were they more prominent in phagocytic activity than in normal rats. The hemolymph nodes in the retroperitoneal area and the mediastinum were enlarged and showed endothelial cell proliferation with marked phagocytosis of red cells and blood pigment. Hemosiderin pigment was also present in the sinus endothelial cells and reticular elements of lymph nodes and proliferation of these cells occurred. Peribronchial accumulation of lymphocytes and pale reticular elements were present in 4 of the splenectomized rats but absent in 2. The thymus was rich in cellular elements and resembled the thymus of the immature rat, but it was not hypertrophied. The bone marrow was hyperplastic.

It may be that the difference in degree of stimulation of the hemocytoblastic tissue and of the cells of the macrophage system is greater in Bartonella-carrier rats than in Bartonella-free rats, due to the greater physiological need created by the presence of latent infection.

Summary. The late compensatory changes following splenectomy in Bartonella-free rats are essentially similar to, but less extensive than those observed in Bartonella-carried stock.

7403 C

The Habitat of Trichophyton Interdigitale Outside the Body.

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Adequate scientific proof of the existence of *Trichophyton interdigitale* (organism of "Athlete's Foot") outside the body seems lacking. Statements in the literature, however, would lead one to judge otherwise. The U. S. Public Health Service states[1]: "Bath mats are justly blamed and it is probable that ringworm can be acquired from them just as warts on the soles of the feet can be . . . . . it can also originate in hotels and from the use of infected towels or soap." The Public Health Engineering Section of the American Public Health Association[2] states: "Most if not all of

[1] *Health News*, E-28, U. S. Public Health Service. September 18, 1928.

[2] *Am. J. Public Health*, 1930, **20**, 7.

these foot diseases are caused by a fungus which is spread by infection of the floors of dressing rooms, etc., at pools, bath houses, gymnasiums, and other places where persons go barefoot." While these inferences may be true they are unaccompanied by cultural proof.

Bonar and Dryer[3] made 30-40 plants of scrapings of floors, hair, etc., in cracks in the floor and traps on the drains from showers. They were troubled by excessive overgrowth with other organisms. They failed to recover the *Trichophyton interdigitale.*

Because of scarcity of cultural work we felt such a study of showers, boat houses and gymnasia would be valuable.

Cotton applicators were moistened with normal saline, placed in test tubes which were plugged with cotton and autoclaved. The applicators were used to mop the area to be studied. They were then cut near the cotton end with a flamed scissors and this portion allowed to drop into a sterile petri dish. Melted Sabouraud's proof medium was poured over the swab and the medium agitated by sliding the dish back and forth on the table. In this manner an even distribution of colonies was obtained. The petri dishes were observed over a period of a month and transplants made on Sabouraud's proof slants of colonies which appeared the least suspicious.

Approximately 1500 cultures were made, one-half of which were of student lockers. Razor blades which were flamed each time were used in making the scrapings. Floors, machines, shells, benches, sills, mats, gymnasia apparatus, showers, etc., were cultured. Several cultures were made of sock washings, beach sand, beard hair and scalp hair.

Two suspicious colonies were obtained, one from a locker and one from a machine foot rest. We failed, however, to obtain sufficient differentiation to prove to our complete satisfaction that the organisms were either *Trichophyton interdigitale* or *Epidermophyton inguinale.* Many white mycelial colonies which might well have been "pleomorphic" forms of these organisms were noted. It is possible that this is the form in which the organism occurs in nature and from which it becomes infectious by a process not yet understood. Proof of this rests entirely on additional knowledge gained in the subject.

The fact that this school apparently has few cases of "Athlete's Foot" may account for our inability to find a typical example of the

[3] Bonar, Lee, and Dreyer, Alice Donsler, *Am. J. Public Health,* 1932, **22**, 909. Bonar, Lee, personal communication, Sept. 19, 1933.

organism. In the school year of 1931-32 seventeen cases reported for treatment at the clinic and in the year 1932-33 only 14 cases, out of a student population of approximately 3,000. We have been unable to trace any infection to a focus about the Institute. The fact that the students diligently use foot baths and care for their feet so well may be a factor in the comparative rarity of the disease.

7404 C

Effect of Glycerine on the Growth of Certain Pathogenic Fungi.

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In studying a group of fungi the inhibitory effects of varying concentrations of glycerine were tabulated from the point of view of possible differential features. Glycerine was incorporated in Sabouraud's proof medium and the pH adjusted to 5.5. Concentrations of 1, 5, 10, 15, 20 and 25% were used.

Growth of the following pathogenic fungi and the 2 saprophytes, *Lichtheimia sp.* and *Scopulariopsis brevicaulis,* was observed over a period of 30 days: *Achorion schoenleinii, Acladium castellani, Candi-*

TABLE I.
Glycerine in Sabouraud's Proof Media.

	0%	1%	5%	10%	15%	20%	25%
Achorion schoenleinii	3	5	5	5	7d	7d	21s
Acladium castellani	3	5	5	5	5	5d	5d
Candida candida	3	3	3	3	3	3	3
Endodermophyton tropicale	5	5	5	7	7d	7d	—
Endomyces capsulatus	5	5s	5s	7s	7s	—	—
Endomyces dermatitidus	5	5	5s	7s	7s	—	—
Epidermophyton inguinale	3	3	3	3	7s	14s	—
Glenospora gammeli	5	7s	7s	7s	14s	—	—
Geotrichum bachmann	3	3	3	3	3	3	—
Indiella americana	3	5	5	5	—	—	—
Lichtheimia sp.	3	3	3	3	3	3	5
Monilia albicans	3	3	3	3	3	3	3
Microsporon apiospermum	3	3	3	7	7s	—	—
Microsporon audouini	3	3	3	3	14	30s	30s
Oöspora humi	3	3	3	3	3	3	—
Scopulariopsis brevicaulis	3	3	3	3	3	3	3
Trichophyton crateriforme	3	3	3	3	7s	7s	—
Trichophyton granulosum	3	3	3	3	5	7	—
Trichophyton interdigitale	3	3	3	3	3	5	8
Trichophyton japonicum	3	3	3	3	5	5	14s
Willia anomala	3	3	3	3	3	3	3s