TABLE I. 18-Hour Response of the Test Organisms to 4 Sugars (at 1% Concentration).

	Growth response (acid production)*			
	L-Arabinose	D-Ribose	D-Xylose	D-Glucose
L. brevis	14.25	14.13	12.42	2.80
L. buchneri	10.28	4.87	4.80	.67
L. fermenti	2.38	9.81	8.17	5.33
L. gayonii	11.28	11.92	6.42	2.60
L. lycopersici	3.40	1.30	2.53	2.10
L. mannitopoeus	13.48	8.42	10.13	2.79

* Calculated as ml of 0.01 N NaOH required to neutralize 1 ml of culture.

was found to have retained all of its original growth-promoting activity.

That D-glucose has been employed with general success as a carbohydrate source for these and related microorganisms may be accounted for by adaption to D-glucose resulting under the test conditions employed. Cheldelin and Riggs(9), for example, carried their culture of *L. gayonii* (A.T.C.C. 8289) in a medium containing 1% glucose. 1% yeast extract, and 2% agar and, like most other researchers, employed an inoculum medium also containing glucose as the sole carbohydrate source. Such conditions would, of course, be certain to maintain this organism in its maximally adapted state.

Summary. Evidence has been presented indicating that an appropriate pentose is essential as an energy source for early growth of *L. brevis, L. buchneri, L. gayonii, L. lycopersici* and *L. mannitopoeus* if passage through a pentose-free glucose-containing medium, which would promote adaptive utilization of glucose, is avoided.

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Effectiveness of Phenoxymethyl Penicillin V, and Sodium Penicillin G Against Hemolytic Streptococcus Infection in White Mice. (21977)

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The following experiments were conducted to determine the comparative effectiveness on a weight basis of phenoxymethyl penicillin V, and sodium penicillin G against hemolytic streptococcus infection in white mice.

Materials and methods. Two groups totaling 640 white mice in 2 tests were injected intraperitoneally with a 10^{-5} dilution of a 16-hour blood broth culture of hemolytic streptococcus C-203. This is usually somewhat more than 1000 LD_{50}, but less than 10.-000 LD_{50}. In one test indicated below it was actually 4,050 LD_{50}, and in the other test it was 5,900 LD_{50} according to virulence tests which utilized 100 mice each. Following injection of the virulent culture, subgroups of 20 mice each were injected immediately by the subcutaneous route with either one or the other of the above penicillins. Different subgroups of 20 mice received either 7 or 9 2-fold

TABLE I. CD_{50}* of Two Penicillins in Hemolytic Streptococcus Infected Mice.

Penicillin used	1 dose therapy (mg)	2 dose therapy (mg)
Phenoxymethyl penicillin V	.207	.031
Penicillin G	.183	.030

CD_{50} computed by the method of Reed and Muench(1).

differing penicillin dosages in the range of 0.5 mg to 0.00095 mg. Stock solutions of the penicillins were furnished and prepared just before use in the mice by Dr. M. D. Bray of these laboratories. In one comparative test of the 2 penicillins, the mice got a single dose of penicillin, given at the time of infection. In the second test, a second dose of penicillin was given 5 hours after the first dose.

Results. As shown in Table I, a CD_{50} (dose curing 50% of mice) is indicated for the 2 penicillins from the results of these two tests. There was no significant difference in the therapeutic efficacy of phenoxymethyl penicillin V and penicillin G in the subcutaneous treatment of hemolytic streptococcus infections in white mice. The CD_{50} doses of the two were comparable, whether on single or double injection 5 hours apart. Furthermore the death rate in mice injected with subcurative doses of these two penicillins did not differ significantly.

Conclusion. Phenoxymethyl penicillin V and penicillin G have essentially the same curative properties against hemolytic streptococcus infections in white mice when these antibiotics are injected subcutaneously.

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Hemolysin Production in Irradiated Mice Given Spleen or Bone-Marrow Homogenate. (21978)

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Antibody formation is inhibited by exposure of the whole body to ionizing radiation (1,2), and the degree of inhibition is correlated with the time of antigen administration referred to the time of radiation exposure (3,4). Spleen or appendix shielding in rabbits during exposure to midlethal amounts of X-radiation resulted in a marked retention of the capacity to produce antibody to sheep erythrocytes(5). Preparatory treatment of the antigen with tissues or extracts of cells has recently been shown to improve the immune response in irradiated rabbits(6,7). Treatment of radiation injury in mice with spleen shielding(8) and spleen or bone marrow homogenates(9,10) accelerates hematopoietic recovery, lowers radiation mortality and has been shown to aid in the defenses against experimental infection(11). The present work was undertaken to study the hemolysin response in irradiated mice and to see whether the injection of marrow or spleen homogenate would hasten the recovery of antibody production following exposure to X-rays.

Methods. Mice, males of an inbred NIH strain, were 11 to 13 weeks of age at the time of irradiation. Mice of another strain, (BALB/cAn X $DBA_2J)F_1$, hereafter referred to as BALB/c, were used in one experiment. Littermates and treatment groups were distributed as nearly uniformly as possible within each group of 10 mice during the radiation exposure. Irradiation was carried out with a 200 KVP X-ray unit operating at 20 ma, with 0.25 mm Cu and 0.51 mm Al added filtration, HVL equal to 0.76 mm Cu. Radiation dose was 450 r (LD_4, 28 days) and in one experiment, 525 r, given at about 55 r per minute. Within an hour or 2 after irradiation, groups