one rabbit, in which the fluctuations were less pronounced than those of the other three rabbits.

Normoblasts were usually observed in every smear. The normoblasts became more numerous as the number of injections increased and hemacytoblasts appeared.

The reticulated cells were moderately increased during the period of the anemia, but the count remained within normal limits during the period of recovery. This is contrary to the usual findings in experimental anemias, in which there is a marked increase in the number of reticulated cells during the recovery period.

There was a moderate leucocytosis associated with the early injections. Subsequently the leucocyte count remained within the limits of normal variations. The differential counts showed no marked changes.

The structural changes in the organs associated with the repeated ink injections will be described in detail in a later publication.

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Bacterial flora of nose and throat in health and upper respiratory infection.

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In searching for the causative agent in respiratory disease, the problem is seriously complicated by the fact that the nose and throat normally harbor a variety of bacteria, some constantly present and others more or less transient. Correct interpretation, therefore, of the importance of organisms found in respiratory disease is dependent upon comprehensive familiarity with the bacterial flora in health. In the present study, a preliminary

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in an investigation of the Common Cold being undertaken by us, observations have been made of the bacterial flora of the nose and throat in a group of normals over a comparatively long period, and qualitative and quantitative changes occurring in the course of upper respiratory infections appearing in the group have been noted.

Thirteen individuals were studied for periods ranging from five to nine months. Aerobic and anaerobic cultures were made from the nose and throat infections weekly in health, and daily in the course of colds and throat infections. All organisms present were carefully identified and their prominence noted.

Our results may be summarized briefly as follows: The normal basic nasal flora includes *staphylococcus albus,* diphtheroids, and for certain individuals, *staphylococcus aureus* and *citreus;* occasional transients are gram-negative cocci and non-hemolytic streptococci. The normal basic throat flora includes gram-negative cocci, non-hemolytic streptococci, and for certain individuals large gram-positive cocci, *B. pfeifferi,* both non-hemolytic and hemolytic, and diphtheroids; transients are *staphylococcus albus, staphylococcus aureus,* hemolytic sterptococci, *staphylococcus citreus* and pneumococci.

Certain of these organisms have been assumed to play pathogenic roles. Such so-called potential pathogens are hemolytic streptocci, *staphylococcus aureus,* pneumococci, and *B. pfeifferi.* In the nose, hemolytic streptococci were found once without associated untoward symptoms. In the throat, hemolytic streptococci had a high incidence in four cases, of whom two had no associated symptoms and two had more or less continuous subacute inflammation of their throats. *Staphylococcus aureus* was high in one case and prominent in her colds. Pneumococci were associated with a mild sore throat in one case and no symptoms in another. High incidence of *B. pfeifferi,* both hemolytic and non-hemolytic, was not accompanied by any apparent increase in respiratory infection.

In the course of colds a number of changes from the normal were noted. In the nose there was a tendency toward scantiness of growth in the early cultures and the basic flora was decreased; in the throat the usual prominence of gram-negative cocci was less marked and there was a moderate increase in the prominence of non-hemolytic streptococci. In both nose and throat there was an increase in the incidence of the so-called potential pathogens.

In the nose hemolytic streptococci and *B. pfeifferi* showed increases which were due entirely to late secondary spread. In the throat, *staphylococcus aureus,* hemolytic streptococci, and *B. pfeifferi* went up; in the case of the two former this was due to secondary spread. The increase of *B. pfeifferi* was due mainly to the fact that the organism was widespread, in normals as well, at the time of most of our colds (late winter and spring). It also played an important part as a late secondary invader.

No bacteria were found in the first or in early cultures to which an etiological role could be attributed. The indications are that the so-called pathogens noted above probably play a secondary role in the type of upper respiratory infection under investigation.

Cultures taken during sore throats showed the expected increase, in the throat, of hemolytic streptococci (from 17 per cent in normals to 56 per cent during infection).

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Glutose and its biochemical behavior.

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Glutose, a 3 ketohexose, prepared by the regulated action of alkali on glucose or fructose, has been investigated.

Chemically it resembles glucose in several ways. On treatment with sodium hydroxide it is converted into hydroxy acids, chiefly optically inactive lactic. On warming with phenylhydrazine in weakly alkaline solution it yields the osazone of methyl glyoxal. Zinc ammonium hydroxide converts it into methyliminazole.

Biologically it differs from glucose in several ways. In human beings, when taken by mouth, it is almost quantitatively eliminated, about half in the urine and half by bowel. Human diabetics show no change in glucose excretion when fed glutose, and the glutose is eliminated as in normals. Phlorhizinized dogs excrete glutose given subcutaneously quantitatively in the urine, and no extra glucose is formed. The respiratory quotient of 0.77