caused experimentally and quantitatively by hypodermatic injection of tuberculin.

The evidence of vascular congestion as depicted on the roentgenogram is a valuable index of a resting patient's allergic susceptibility, or its absence after exercise, of acquired resistance.

(4) It probably frequently happens, as in our case, that the anti-bacterial lytic power in proximity of the primary focus of infection is so strong that the development of tubercles there is wholly prevented, and through continuance of rest allergy and fever subside and a feeling of normal well-being is restored. But, nevertheless, this is a critical period; for the hitherto unaffected contralateral lung may simultaneously, without morbid symptoms, become the seat of congestion and deposition of miliary tubercles. Such an occurrence finds plausible explanation if we suppose that specific hypersensitiveness of the contralateral lung causes fixation of intruding tubercle bacilli which the local tuberculolytic power is not sufficiently developed to dissolve, the forces of tissue resistance being constrained to the more leisurely process of tubercularization. With continuance of mental and physical rest complete annihilation of these foci of disease may occur through absorption, fibrosis or calcification. On the other hand, it seems probable that in neglect of such precautionary rest we have the explanation of the serious problem of the actively tuberculous contralateral lung.

The case here recorded was pictured throughout its course by a medical roentgenologist, Kenneth D. A. Allen, and will be described fully in an early issue of the *American Review of Tuberculosis*.

HENRY SEWALL

DENVER, COLORADO

THE ROLE OF DAMPING-OFF DISEASES IN RELATION TO FAILURES OF ALFALFA STANDS ON SOME ACID SOILS[1]

A DAMPING-OFF disease of alfalfa has been found to be associated with acidity in three Iowa soils. Alfalfa seedlings grown in the field during June, 1933, on acid Clarion loam and Tama and Webster silt loams were 41, 48 and 16 per cent. diseased, respectively, while on neutral Clarion and Webster silt loams only seven and six per cent., respectively, were diseased. In germination and emergence stages, infected alfalfa seedlings are rapidly invaded, so that complete collapse and general necrosis takes place in less than 24 hours. Older seedlings appear to be less susceptible to general invasion and necrosis, but until the plants are fully established the parasite seems able to produce local lesions on the hypocotyls and primary roots.

Isolations from recently collapsed tissues of infected seedlings appear by their mycelial characters and their habit of conidia or sporangia production to be species of the genus Pythium. Infection trials with these cultures on alfalfa seedlings grown in sterile soil indicate that they are pathogenic.

When acid soil was steamed for two hours at 15 pounds or treated with ½ per cent. formaldehyde it grew a higher percentage of healthy alfalfa seedlings than did untreated neutral soil. There has been some indication that limestone and hydrated lime will inhibit damping-off in acid soil. Less damping-off of alfalfa seedlings occurred in pots of acid soil at a temperature of 9° C. than in similar pots kept at 20–25° C.

It seems highly probable that we have overlooked the rôle of damping-off fungi incident to failure of alfalfa stands on some acid soils.

WALTER F. BUCHHOLTZ

IOWA AGRICULTURAL EXPERIMENT STATION

[1] Journal Paper No. J 190 of the Iowa Agricultural Experiment Station, Ames, Iowa. Project No. 77.

WANTED: HALOS IN MICA

THERE are four main types of methods of determining geologic ages: (a) By the ratio of the radioactive lead produced by the decay of uranium, thorium or actinium to the amount remaining. This has been mainly successful with minerals containing these elements in quantity. When the mineral is obtainable in quantity so that one can obtain the lead isotopes or atomic weight,[1] it is reliable, especially if the age is confirmed on various minerals containing lead from different elements.

(b) By the helium produced. This has been most successful in fine-grained traps and meteorites in the hands of Paneth and Urry[2] where very minute quantities are present.

(c) By the loss of radium owing to its decay, as applied by H. Schlundt to recent tufas.[3]

(d) By the halo rings of discoloration around minute particles of radioactive matter enclosed in mica. This was first suggested by Joly, but Professor G. H. Henderson, of Dalhousie University, Halifax, Nova Scotia, has opened a vista of promise by devising a method of comparing the relative strength of the rings produced by elements that have different rates of decay.[4]

I am delighted to hear that the Carnegie Corporation of New York has granted aid in his researches. Geologists and mineralogists should help by provid-

[1] Confer von Grosse or J. P. Marble, *Jour. Am. Chem. Soc.*, 56: 854, 1934.

[2] *Chem. Review*, 13: 305–346, 1933.

[3] Report of the Committee on the Measurement of Geologic Time, 1934, page 34.

[4] *Proceedings* of the Royal Society A. 145: 563–598, 1934.