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

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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.

ing suitable material. Hence this note! By suitable material I mean biotite (not muscovite), in flakes of a centimeter in diameter, whose geological provenance is known. I would therefore appeal to geologists and mineralogists to help—not by deluging him with mica, but, in case they find suitable material, by letting him have some. Rock sections can not be used at present.

ALFRED C. LANE,
Chairman, Committee on the Measurement of Geologic Time, National Research Council

SCIENTIFIC BOOKS

THE DYNAMICS OF POPULATION

Dynamics of Population. Social and Biological Significance of Changing Birth Rates in the United States. By FRANK LORIMER and FREDERICK OSBORN. New York (Macmillan), 1934. Pp. xiii + 461. $4.00.

BECAUSE population is so evidently an important factor in all major social and economic problems its movements have come to the front as a paramount issue in human biology in the period since the world war left all mankind in an uncommonly difficult and troubled situation. In 1918 little that was precise and penetrating was known about population problems. In consequence they became a glittering target for the artillery (or should we say archery) practise of viewers-with-alarm, pseudo-scientific exhorters, God-sakers and other assorted uplifters. Attitudes have changed rapidly in the field. A decade ago the horrid bugaboo was overpopulation; of late it is that mankind is shortly to perish miserably because of its careless inattention to the business of reproduction, or alternatively its reluctance to pursue adequately and diligently so inherently pleasant a duty. But nothing is surer than that earnest exhorters in however noble a cause become bores; quickly, easily and how profoundly. Everybody is getting wearied of sermons about population, as began to be the case a little earlier about its sub-department of eugenics. What is wanted instead is sober, critical appraisal of the pertinent facts, and their extension by further really scientific investigations, unmarred by moral judgments or indignation.

It is in just this direction that Lorimer and Osborn have made a first-rate contribution. At the expense of obviously great and painstaking labor they have brought together, critically digested and assimilated into a reasonably unified whole a large body of factual data. They have done this with a coldly critical eye first to the selection only of material that has some degree at least of quantitative precision, soundness and relevance. In addition they have, wherever possible, extended the usefulness and meaning of the data by working them over, to use the cant phrase of the laboratory, getting out of them in this way all the information they were capable of yielding.

Dynamics of population is divided into four main parts, each containing several chapters. These parts deal respectively with population trends of American groups; the measurable characteristics of these groups; the influence of differential reproduction on the characteristics of the American people; and, finally, the causes and control of population trends. The discussion of these matters takes up just under 80 per cent. of the volume, the remainder being devoted to detailed appendices, excellent extensive bibliographies and really adequate indices.

The attitude of the authors toward their work is stated in this way:

> It has not been the purpose of this book to define a population policy for the United States or propose a program of practical eugenic activity. We shall be satisfied if we have presented a fair picture of the changes which are taking place in our population, of their causes and of their social consequences. But the problems raised are so new as subjects of serious study, that the question is still constantly asked, "Are the forces that determine population change in any way subject to social control?" as though we were dealing with something mysterious or outside the realm of reasonable social concern. It is our belief that the causes of population change are just as capable of being placed under social control as are the forces influencing health, economic processes, or other human activities.

The first part of this platform is maintained throughout the book, with admissible restraint and critical intelligence. And surely it is only fair to allow such conscientious and hard-working authors a little indulgence for the exhibition of their pious beliefs, piety being inherent in man. But one can not help wishing that Mr. Osborn would now turn to and write another book telling us about the "social control" of "economic processes." For the most cursory examination of one's own investment portfolio suggests that the "control" in this sphere has fallen something short of an at least naively conceivable ideal.

The conclusions of the four parts of the book may, in the space of a review, be only briefly and inadequately indicated. In the main they are not novel, as is to be expected from the nature of the book. But they are evaluated with real critical acumen. The United States population as a whole is held to be approaching a stationary condition. Its era of most