no cryptogamic flora in culture. The above results show that when green, hard figs are entered by thrips they become inoculated with organisms capable of producing various decays and fermentations in the ripening fruit. Though the 1928 season was especially favorable for thrips the comparatively high percentage of green, hard figs found infested would indicate that infection from this source alone is sufficiently great to cause the growers considerable loss. It is also possible that the early start of decay and fermentation in thrips-infested figs, giving rise to odors very attractive to *C. hemipterus* and *D. ampelophila,* is partly responsible for the appearance of these insects in the orchards at the time when figs begin to mature. This and other phases of fig diseases are being further studied by the author.

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GALBA BULIMOIDES LEA AN INTERMEDIATE HOST OF FASCIOLA HEPATICA IN OREGON

IN studies of the liver-fluke problem in Oregon a survey of the *Lymnaeidae* of the state was made. Of the five species[1] collected *Galba bulimoides* Lea was the only one which was found in every fluke-infested pasture which was examined.

Five different cercariae were observed in this species. One of these, an unarmed type, was obtained repeatedly from specimens of *G. bulimoides* collected in a fluke-infested pasture. Studies of this cercaria revealed that it agreed both morphologically and physiologically with the descriptions and photographs of the cercaria of *Fasciola hepatica.* Daughter rediae were not found. Mother rediae, obtained by crushing snails, agreed with the descriptions of redia of liver flukes. Furthermore, these rediae and cercariae were apparently identical with rediae and cercariae obtained from live specimens of *Fasciola hepatica* infested *Lymnea truncatula* Müller received from Dr. R. F. Montgomerie, of University College of North Wales, Bangor, Wales.

It was proved that these were forms of *Fasciola hepatica* by feeding encysted cercariae to guinea pigs and recovering typical liver flukes from their livers upon autopsy.

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[1] Identifications of mollusks were by Drs. H. A. Pilsbry, Paul Bartsch, W. B. Marshall, G. Dallas Hanna, A. W. Hanham and J. R. C. B. Tomlin.

THE RADIOACTIVITY OF LIGHT ELEMENTS

THE statements made in the past and repeated recently (*Lind-Chemical Reviews,* 5 (1928): 366) that no element of atomic weight less than 210 has been found to exhibit radioactivity except potassium and rubidium suggest that these exceptions may eventually be ruled out. The unknown element number 87 coming just before radium in the periodic system would probably be radioactive. This element being a member of the alkali metal family should occur with rubidium or potassium. The suggestion then may perhaps be made that whatever radioactivity is shown by specimens of potassium or rubidium is due to the presence of traces of the heavy element number 87, and that the discovery of this element should come about through the examination of radioactive rubidium or potassium.

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RAMAN SCATTERING FROM HCl LIQUID

WE have observed the Raman effect with pure hydrogen chloride liquid, at $-100°$ C., using a mercury arc and Hilger E62 spectrograph. A scattered line whose center is at 4560 A. U. persists with the incident light filtered so as to give only the 4047 line strongly, indicating an absorption band at 3.60 μ for HCl liquid. The modified line is several times broader than the unmodified line, and is more diffuse at its long than at its short-wave edge. Modified scattering of the 3.6 μ band of HCl gas was reported recently by R. W. Wood (*Nature,* February 2, 1929).

Our resolving power was insufficient for the separation of lines as close together as the rotational lines of HCl gas, but the work is being continued with better resolution. The infra-red spectrum of HCl liquid is also being measured.

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PROFESSOR HUNTINGTON'S METHOD IN CONTROVERSY

IN his latest contribution to the discussion on apportionment (SCIENCE, March 8, page 272), Professor Huntington brands as false my statement "that a certain series quotients 'would sum up to 435.'"

I wrote "the whole series would sum to 435," which is true but possibly ambiguous. By inserting the