Control of Prickly-Pear by the Cochineal Insect.

I HAVE read with interest the communications of Messrs. C. T. Jacob¹ and W. B. Alexander² on this subject. Referring to the introduction of the cochineal insect into India, the latter remarks: "In India, the offer was considered at a conference of the entomologists of the various provinces, and it was decided not to accept it, on the ground that prickly-pear was largely used for hedges, and that, where it threatened to become a pest, it could easily be eradicated, as abundant cheap labour was available". I am constrained to state that neither the first part nor the latter portion of this statement describes the real facts. I may state that, though the Government was not very enthusiastic about the introduction of this new insect, it never had any conference of provincial entomologists or gave any such opinion regarding the necessity for, or the easy method of, eradicating prickly-pear when needed. In South India the prickly-pear has been felt to be a very serious pest and nuisance for years, and the Government has been spending a great deal of money in getting the same eradicated in various ways without any appreciable success until now. Nor has it ever been felt by any responsible person that "it could easily be eradicated, as abundant cheap labour was available".

Anyone travelling, even along the railway tracts of South India, can easily form an idea of the extensive areas of valuable arable and pasture lands overrun by this terrible pest. It is not only harmful in harbouring dangerous reptiles, etc., as Mr. Jacob puts it, but also is in every way an undesirable weed. Among other things, it blocks up village footpaths, covers the banks and foreshores of streams and rivers, encroaches badly and quickly on cultivated areas, and in fact makes the whole country-side very unsightly. The introduction of this cochineal, though through a private agency, was certainly not a "thoughtless importation" of a strange animal; on the other hand, it is being felt as a real boon. By its steady and effective work of controlling the weed (*O. dillenii*) the insect has not only helped in the saving of thousands of rupees usually spent year after year to keep the same under some control, but it has also been clearing the country-side remarkably and very satisfactorily.

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¹ NATURE, 128, 117, July 18, 1931.

² NATURE, 128, 226, Aug. 8, 1931.

Control of Humidity of Air Currents.

PROF. J. B. SETH¹ has described a method of obtaining air currents of which the humidity can be regulated. I do not doubt that his method is a good one, though I have no experience of it. But may I point out that humidifying the air by mixtures of sulphuric acid and water is also a good method, provided that certain precautions are taken. It is perhaps unsuitable if large volumes of air are required. The air should be blown, not sucked, so that any leaks which may occur will be outwards. The air should not be bubbled through the acid, for that imparts to it an acid spray, which is most difficult to remove; it should pass through several Woulfe's flasks, containing pumice well wetted with the acid. Nearly all the humidifying (or drying) of the air takes place in the first Woulfe's flask, to which the gradual alteration in the strength of the acid is almost confined. After the last Woulfe's flask, arrangements should be made

for drawing off a sample of the air stream; it may be bubbled through an indicator to show that it is free of acid; or it may go past a dew-point apparatus, enclosed in glass. This is most important, as it provides a method of hygrometry, perhaps the most suitable for this particular purpose. I have recently figured a convenient dew-point instrument.²

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¹ NATURE, Oct. 10, p. 638.

² Bull. Entom. Res., vol. 22, p. 431.

WE have read with interest the communication of Prof. J. B. Seth in a recent issue of NATURE¹ on a method of obtaining air currents of various relative humidities. The method described by Prof. Seth makes use of the principle of admixing appropriate proportions of desiccated and saturated air; it appears to be assumed, however, that saturation may be effected by bubbling air through a bottle full of water. In a recently published paper² we have shown that this assumption, which is very commonly made, is not justified. Passage of air at a rate of approximately 60 c.c. per min. through a Dreschel wash-bottle full of water produced a relative humidity of only 80 per cent; whereas at the same and much higher rates of flow complete saturation was obtained by admitting steam into the air current and condensing out the excess moisture under thermostat conditions. Lower relative humidities were obtained quantitatively by suitably admixing saturated and desiccated air.

Since the failure of the 'bubbling method' is undoubtedly attributable to factors connected with hydrostatic pressure, clearly it cannot be overcome merely by increasing either the number of bottles or the depth of liquid. The point to which we desire especially to direct attention is the doubt that must be associated with any method of saturating a stream of air that depends on its passage vertically through a column of water.

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¹ NATURE, Oct. 10, p. 638.

² Trans. Faraday Society, 27, 248; 1931.

Short Wave Reception and Ultra-Radiation.

A FEW years ago W. Kolhörster¹ referred to the possible connexion between short wave fading and the fluctuations of ultra-radiation, and suggested comparative investigations. Up to now such investigations have not been undertaken, so that still nothing is known concerning this.

In the following I wish to direct attention to an undoubted analogy in the changes in short wave reception and in the changes in intensity of ultra-radiation during terrestrial magnetic disturbances. This permits conclusions to be drawn as to a connexion between the two phenomena.

The auditory reception strength for short wave long-distance reception increases gradually for a few days before a magnetic disturbance, until, on the day of the disturbance, it decreases suddenly, even to inaudibility. It first increases again in the course of the following days, there being a slow increase but for superimposed fading effects.² Corlin³ has now been able to derive statistically a completely inverse picture from his ultra-radiation observations in northern Sweden in the winter of 1929-30. According to this, the strength of the radiation decreases slowly and continuously for some time before a disturbance,