here and a Coulomb field farther outside, the solutions of the Dirac equations can be found accurately, without using approximations; in this case we found good agreement with the approximative method.

My thanks are due to Prof. Pauli and Dr. Delbrück for helpful discussion.

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[1] Schüler and Keyston, *Z. Phys.*, **70**, 1; 1931: **72**, 423; 1931.
[2] NATURE, **128**, 408; 1931.
[3] Gamow, "Constitution of Atomic Nuclei and Radioactivity", Chap. ii., Tab. III.
[4] See Racah, *Cim.*, **8**, 178; 1931.

Electric Arc between Carbon and Substances which are Insulators at Ordinary Temperatures

IT is well known that glass, chalk, porcelain, etc., become conductors if they are brought to high temperatures. Using this fact, an electric arc can be started between a carbon electrode and a second electrode of these materials.

With a glass electrode the arc is particularly noiseless, even with alternating current (4-5 amperes: 100 volts). The emitted light is a whitish-golden light of warm tonality. Observation with the spectroscope showed a continuous spectrum, which is originated by the pure arc (without the electrodes), and some bright lines. Some dark lines were also observed, and, among them, the *D* lines, which are remarkably strong. If the arc is projected longitudinally on the slit, some of the dark lines (particularly the *D* lines) show a beaded ('venternodalis') feature. This peculiar feature was also observed by me some years ago under different conditions;[1] but in the glass arc is much more marked.

With a chalk electrode the starting of the arc is more difficult.

In order to start the arc with a porcelain electrode, this must be previously brought to a very high temperature. The arc with a porcelain electrode is very white and bright; it has sometimes explosive properties.

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[1] *Nuovo Cimento*, S. VII., vol. 26, pp. 75-76; 1923.

Vanishing Life of Australia

MY attention has been directed to an article in NATURE of Sept. 12 last, entitled "Vanishing Life of Australia". As the officer in charge of the Department the function of which it is to protect the native game of this State, a few lines on the subject may not be out of place.

With much of what is said in the article I agree, but some of the statements made are, I fear, rather misleading to the general public. For example, within one hour's motor run of the City of Melbourne—a city of more than one million inhabitants—can be seen kangaroos, lyre birds, and koalas or native bears in their native state, thriving and unmolested by the public. As a matter of fact, there are more kangaroos and wallabies now in this State of Victoria than there were twenty years ago, this being due to adequate protection and the abolition of the market shooter. A similar condition of affairs can be truthfully said to apply to the platypus, that unique paradox which is now common in most of our waters. I have no reason to fear the wiping out of our unique fauna in the immediate future.

The two principal factors in these days accounting for the reduction in numbers of the Australian fauna are the spread of settlement resulting in the opening up of the country and the difficulty of securing adequate suitable areas for sanctuaries and national parks. However, some of the more beautiful of our cockatoos and parrots, which were nearing extinction a few years ago, have been brought back in greatly increased numbers in recent years, due to strict protection and the proclamation as sanctuaries of their breeding places.

The adequate protection of our rare birds and animals has been made possible by a gradual tightening up of the law. It is now illegal to have in possession, no matter when or where obtained, any of the following birds or animals, or their skins or feathers: Platypus, Koala, Lyre Bird, Rock Pebbler Parrot, Major Mitchell Cockatoo.

This law, which is easy of administration, together with the force of public opinion, has meant not only the preservation of these species, which were tending to become rare, but also their gradual increase, so that they are now more abundant than they were years ago. Furthermore, as an aid in their protection, no permits whatsoever are given to take any of these particular species. Any other native bird or animal may be given the benefit of this special protection at any time, should it be thought there is any need for it, simply by an Order in Council.

These remarks will indicate to your readers that this State of Victoria realises its responsibilities by conserving for future generations the unique birds and animals committed to its care by giving them adequate protection under the law.

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Feb. 24.

THE efforts made, officially and unofficially, to protect the rare creatures of Australia, deserve commendation, but their effectiveness as regards certain species is in some doubt, if we may judge from the opinion of the Council of the Royal Zoological Society of New South Wales (see NATURE, Dec. 5, 1931, p. 935). Moreover, Mr. Lewis should have reminded us that the Melbourne *Argus* of Sept. 18, 1931, published six days after our leading article appeared, announced that an individual had been fined £955 5*s*. for unlawfully consigning 3821 skins of 'opossums', a fact which suggests that the protection afforded by the law is yet far from perfect (see NATURE, Jan. 23, 1932, p. 126).

THE WRITER OF THE ARTICLE.

Electrical Potential Differences across Onion Epidermis

R. J. PUMPHREY, in a careful investigation,[1] has found constant electrical potential differences across epidermis stripped from the bulb scales of onions when this membrane separated unlike solutions of electrolytes. We, on the other hand, had previously observed under similar conditions potential differences which changed with time.[2] Pumphrey offers the suggestion that the fall in potential difference in our experiments was due to diffusion of salt from the KCl bridges used to connect the calomel half-cells with the solutions bathing the membrane.

This was an entirely plausible explanation, but we do not believe it to be the correct one, for the following reasons: In our experiments the KCl bridges were removed from the experimental set-up immediately after each observation. In preparation for the succeeding observation their tips were rinsed with the