

at the time  $t = 0$  which is propagated without change of form with the velocity of light, then we should expect, if the damping coefficient  $\alpha$  of the pulse was simply related to the frequency of the oscillations present in the Kerr cell, that the wave train would be modified by the high frequency oscillations, causing the frequency of the light pulse with this damping coefficient to be changed.

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#### Action of Light on Coloured Bakelite.

A VERY interesting question is raised by Lord Rayleigh's letter on "Action of Light on Celluloid stained with Malachite Green," in NATURE of Oct. 27, p. 645.

Mr. A. Munro, the manufacturer of the 'Research' fountain pen, in a letter to me dated Oct. 3, 1928, discussing the colour of his pens made of bakelite, said: "The blue I gave up making . . . as in six months or less it spontaneously changed to green, and not a nice green either." Referring to another supply of bakelite, Mr. Munro said: "The colours it may change to are not yet known." In regard to a German brand of bakelite, he said: "Large quantities were sent to China a few years ago to make their images of, and it seemed an ideal substance, but now the Chinese will not have it, as the amber changed to red and blue to green, and the gods could evidently not be relied upon. A Research pen, green originally, came back from India a beautiful ruby and quite transparent."

For the information of those not acquainted with the substance, it may be mentioned that bakelite is a well-known synthetic resin made by combining carbolic acid and formaldehyde. Evidently nitro-cellulose is not the only causative agent of this curious colour change. Bakelite at first is liquid, and can be obtained as a liquid varnish, which can no doubt be stained to any desired colour. Baking at a suitable temperature polymerises it, and it becomes completely insoluble in water and nearly all other reagents.

Apparently further investigation will be necessary to determine the cause of this change of colour.

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#### Low Buoyancy of Surf.

MANY reasons have been advanced for the drowning of the crew of the Rye lifeboat, but there is one which I have not seen referred to, and which, I think, must be to a great extent responsible. The first time I realised the importance of this was when standing on the rocks overhanging the rapids below Niagara. I noticed that the water was mixed to a great depth with air bubbles, and this seemed to me to throw light upon the failure of swimmers to survive the passage of these rapids.

The human body has a density approximately the same as water, and a swimmer finding himself in water containing large numbers of air bubbles is in the same position as if attempting to swim in a liquid of a much lower density than water. Suppose, for example, the water contains 10 per cent of its volume of air bubbles, the effect upon a man attempting to swim in this would be the same as if in ordinary water he tried to carry more than a stone weight upon his back.

When the sea is very rough, with a wind blowing on shore, there is usually a surf, or a number of waves

breaking simultaneously as they approach the shore, and this churns up the water so that for some depth it contains a considerable amount of air in the form of bubbles. This is the cause of the white appearance of such a surf. I do not think that people fully realise the danger of attempting to swim in such aerated water; the effect is perfectly obvious when once it is pointed out, but I have not found that this danger is realised at all, and a warning as to its existence may not be out of place.

J. S. OWENS.

#### A Lunar Eclipse Legend.

THE legends of primitive peoples connected with astronomical events are of interest to students of the history of culture, ethnography, etc. A story of this kind explaining the eclipse of the moon was heard by me last August in Karačaj—a region to the west from Elborus (Caucasus). The Karačajians believe that on the moon there is a handsome girl guarded by two dogs. The evil spirit Žemilaūz, whose mouth is so large that when opened the lower lip lies on the earth and the upper on the sky (žemil = large, aūz = mouth), wants to devour her; but he can do this only when the girl and the dogs are asleep. He watches this moment to swallow the moon with the girl and dogs. Thus begins the eclipse. The Karačajians help the girl to be saved by means of shooting, shouting, and prayers. All this noise, they believe, must awaken the dogs, which, on their part, will wake up the girl. The girl being awakened, she is beyond the power of Žemilaūz, who is then obliged to discharge the moon.

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#### Preparation of Tantalum Pentabromide.

DURING the course of preliminary investigations which are now in progress with the view of re-determining the atomic weight of tantalum, it has been found that tantalum pentabromide can readily be prepared in an atmosphere of nitrogen or argon by distilling bromine on to powdered tantalum heated to 260° to 300°. Heating the metal to red heat, as done by Moissan (*Comptes rendus*, 134, 211; 1902) and subsequent workers, has been found unnecessary. It is hoped later to present in a paper details of the experimental procedure adopted, together with the results of analytical determinations.

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#### What is a Hybrid?

EVERY year, when discussing questions of genetics with my classes, I am compelled to explain that the text-book uses the word hybrid in a very loose way, including heterozygous individuals of all kinds. According to this common usage, the world is full of hybrids, and all human beings are hybrids. I suggest that it would be more convenient to restrict the name hybrid to crosses between species. Crosses between variations or mutants are mongrels, but it may be better to use a more technical or international word, and I suggest 'heterogene.'

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