in a way in which the parent did not, and could not, have produced it, *i.e.* only if the child became profoundly different by nature from the parent, *only if it varied*. It follows that the word "inherit" (because often used as synonymous with "reproduce") is employed, commonly but quite unconsciously, with two directly opposite meanings. When applied to "germinal" characters it is given its ordinary meaning; it then means *inherit* (in the only sense in which anything can be said to be inherited). When applied to "acquired" characters it means *vary*. All this loose use and misuse of words—innate, germinal, acquired, somatic, inherit, reproduce—is a legacy from the days, before the discovery of cells, when students of heredity thought in terms, not of the germ-tract, but of the whole individual, the soma. "Germinal" and "somatic" are modern terms, but they reproduce ancient, inaccurate, popular ideas. The result has been half a century of futile labour, discussion, and confusion. If it be thought that I am mistaken as to all this, can anyone tell us in precise terms what in the world the Lamarckian controversy was *about*; or what is meant when it is said that some characters have "representatives in the germ-plasm" while others are merely due to "light, heat, moisture, and the like"; or what is intended when an inquirer seeks to ascertain to what categories (germinal or somatic) certain characters belong, and so on?

Is not the following universally and indisputably true? Does it not cover the whole Neo-Darwinian-Lamarckian field, and much besides? *The sole antecedent of non-inheritance is variation. Apart from variation, like exactly begets like when parent and child develop under like conditions.* But if this general statement be true, the study of heredity is relatively simple. Its difficulties have resulted not so much from the complexities and obscurities of reality as from those of language.

The natural inference from the discovery of cells and their mode of origin is that heritage travels down the germ-tract. The *necessary* inference from this, in turn, is that all the characters of the individual are innate, acquired, and inheritable in exactly the same sense and degree. The inference which Weismann, hypnotised by words, drew was that acquired characters are not transmissible. If we give our words their natural meanings (which is not the meaning the Lamarckians gave), there is sense in the statement that acquired characters are transmissible. *Of course,* acquired characters are transmissible in exactly the same sense and degree that any characters are transmissible. But there is absolutely no meaning in the Neo-Darwinian statement that acquired characters are not transmissible. It is like a declaration that five miles weigh five pounds.

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Squalodont Remains from the Tertiary Strata of Tasmania.

DURING a recent visit to the north-west coast of Tasmania I was fortunate enough to discover in the Tertiary beds at Wynyard—usually regarded as Miocene—the skull and a good proportion of the skeleton of a Squalodont whale. The fossil is in a particularly good state of perservation, and has been removed to the biological department of the University of Tasmania.

The remains so far discovered in Australia which can be assigned definitely either to the Archæoceti or to the primitive Odontoceti comprise in all some six or seven teeth, so that the present discovery is of more than passing interest. A detailed description of this specimen will be published later, but I have thought that a preliminary notice might be of interest to British naturalists.

The following is a short summary of the characters of the skull of this fossil:

Measurements.—Total length, 56 cm.; zygomatic breadth, 37·6 cm.; snout length (from bottom of antorbital notch), 25·5 cm. Whole skull, dolphin-like; snout shorter in proportion to skull than in Squalodon, longer than in Prosqualodon or Patriocetus; shape of snout triangular, but slightly concave on each side. Nasal bones similar to those of Prosqualodon. External nares not so far back as in Squalodon. Supra-orbital plate of frontal not entirely covered by the supra-orbital process of the maxilla. Supra-occipital strongly developed, meeting frontals anteriorly, and so preventing the parietals from entering into the formation of the skull-roof. Symphysis of mandible extends to posterior edge of first molar.

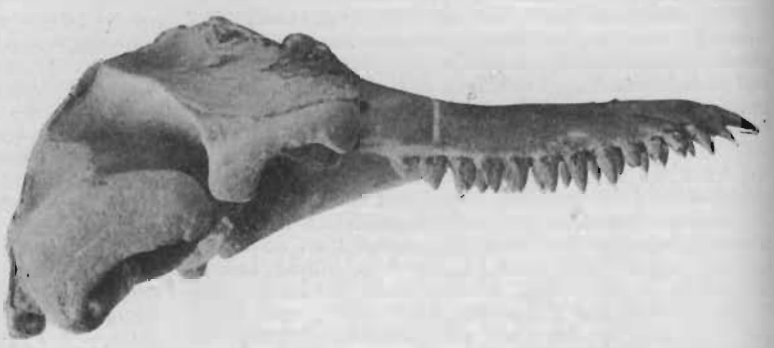

FIG. 1.

Dental formula: I 3/3, C 1/1, P 4/4, M 6/6 (Van Beneden's notation).

Posterior molar in each jaw degenerate. All molars two-rooted, with indications of disappearing third root. Roots of molars connected by an isthmus as in Prosqualodon; roots of premolars coalesced, though separated by a groove in some cases. All teeth closely packed in jaw, sometimes overlapping. Molars with three cusps on each edge, making, with the primary cusp, seven cusps in all. Pattern of surface of molar teeth can be seen from Fig. 2, (B) and (C).

The arrangement of the bones of the skull-roof marks this skull as being that of a Squalodont, but there are features in which the specimen closely approaches the Archæoceti, *e.g.* in the form of nasals, the position of the external nares, and the shortness of the rostrum. The problems centring round the dentition need not be discussed here.

It is possible that these remains might be referred to one of the genera Parasqualodon and Metasqualodon founded by Hall on an examination of the Australian teeth referred to above.

This is a point on which a definite opinion can be given only after a detailed examination of the teeth in the National Museum, Melbourne. I have refrained, therefore, from referring the specimen to any genus.

With regard to the figures accompanying this letter, Fig. 1 shows the skull from the right side, and Fig. 2 (A) the posterior premolar, (B) the fourth molar,

and (C) the posterior molar, all of the left ramus of the mandible. In (B) and (C) can be seen the isthmus joining the roots of the molars and the traces of the original third root. The peculiar cusp-like pattern on the face of the teeth is also well shown.

It should be mentioned that the knob which is

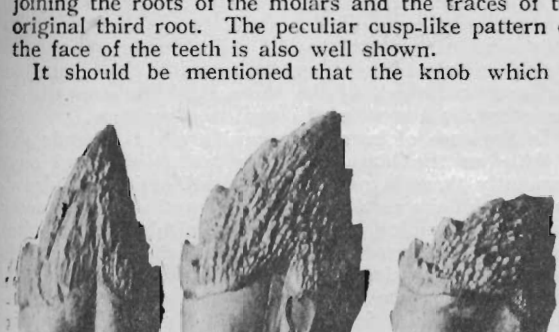

FIG. 2.

apparent in front of the nasal region of the skull in Fig. 1 is merely a concretion difficult to remove without damage to the skull.

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University of Tasmania, Hobart, September 9.