same in which the Lindberghs established a new transcontinental record in April, 1930, and in which they flew to the Far East the following year. Until the proposed Geographical Hall is built the plane and its equipment will be installed in the Hall of Ocean Life.

The New York Times writes that on December 22 Rear Admiral Richard E. Byrd, "halting the southerly drive of his flagship along the 150th meridian, when the pack accumulating ahead seemingly threatened to bar further progress, ordered the ship to retreat a little to find open water, put his giant seaplane over the side and renewed the southern assault by air. Before he turned back the flight carried him to Latitude 70 degrees south, surpassing by 350 miles the record southing attained by Captain Cook on this meridian in 1773. The area of vision within the range of the plane, together with the corridor already opened by the flagship after it, too, had broken past Cook's track, brought to approximately 30,000 square miles the total amount of unexplored sea opened up by the expedition in its first operations."

DISCUSSION

NAMES FOR THE HYDROGEN ISOTOPES

In a recent issue of SCIENCE, Professor R. W. Wood has suggested that the heavy isotope of hydrogen be named bar-hydrogen and suggests the symbol $\overline{H}$. He also further suggests that the compounds containing the heavy isotope be referred to as $\overline{\text{B}}$enzol, $\overline{\text{A}}$mmonia, and so forth. It is interesting that we considered exactly this name and symbol before we published the suggestion of the name deuterium for the heavy isotope, and protium for the light isotope. One difficulty with many of these names which has been overlooked by Professor Wood is that there are not two varieties of water, two of ammonia, two of benzene, and so forth, but there are three waters, four ammonias and thirteen benzenes. No matter what name is finally given to the heavy isotope, there will be no simple way of naming these complicated compounds. In fact, if there were only two waters, two ammonias, and so forth, the names "light water," "heavy water," "light ammonia" and "heavy ammonia" would be very satisfactory indeed.

The real difficulties arise when we try to name such compounds as H^1H^2, $NH^1H^2_2$, $NH^1_2H^2$, $C_6H^1_2H^2_4$, and so forth. Using the names suggested by us, these would be called protium-deuterium, mono-protium di-deuterium nitride, di-protium mono-deuterium nitride and tetra-deutero benzene, respectively. If we use the name bar-hydrogen, it will be necessary to devise similar rather complicated names for these compounds, and we really think, from the standpoint of simplicity, there is very little advantage to be given to one set of names over another.

Professor Wood objects to the treatment of the heavy isotope of hydrogen as a distinct element, but from our conversations with a number of organic chemists where this problem is the most serious, it appears almost necessary to name some of these compounds as though the deuterium were a foreign element. Thus the compound $CH^1_3H^2$ might be called deutero methane, just as the compound CH^1_3Cl may be called chloro methane. This method of naming does not place the two isotopes of hydrogen on the same footing, but regards the second isotope of hydrogen as a foreign element, but this will be true regardless of the name of the second isotope. Moreover, the name bar-hydro as a combining term for naming such compounds would probably be confused with the term hydro in common use. Perhaps the term bar-hydro would be contracted to bar or baro, in which case the combining term would be that which would naturally be derived from the name barogen, another name considered by us and frowned upon by our friends on whom we practised it. Because of these difficulties, we do not believe that there is any great advantage in Professor Wood's suggestion of bar-hydrogen over that of deuterium as a name for the isotope, and in fact feel that the name deuterium is better.

The question of a symbol for the heavy isotope is a troublesome one, and Professor Wood's suggestion has certain advantages. We may say that we have found it convenient to refer to the symbols of the compounds such as those written above, by agreeing to refer to the superscript first and the subscript second. Thus the compound $NH^1_2H^2_1$ can be read N, H, one, two, H, two, one. We have considered other suggestions for symbols, as, for example, the use of D for deuterium, but we have found that the formuda ND_3 for the ammonia containing the heavy isotope and similar formulae for other compounds do not appeal to us. After all, the heavy isotope of hydrogen is also hydrogen. Such a symbol as this has the disadvantage of making the heavy isotope of hydrogen a distinct element. We still think that the symbols H^1 and H^2 are the best choice because they fit into the general scheme of symbols for other isotopes. Recent work of Lewis indicates that the oxygen isotopes may be separated by distillation in appreciable quantities. What system of bars can possibly be devised to refer to the nine varieties of water? Little confusion will result if we agree to read the superscript first and the subscript second, as suggested above.

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SUGGESTED NOMENCLATURE FOR HEAVY HYDROGEN AND ITS COMPOUNDS

THE suggestion of Professor Wood in the issue of SCIENCE for December 8 to designate heavy hydrogen atoms by the term "bar-" will not meet the complications which will arise when organic compounds of this substance are prepared. Thus 12 "bar-benzols" are possible, depending on the number of heavy hydrogen atoms in the molecule. It is almost inevitable that some special name will have to be given to the heavy hydrogen atom in order to incorporate that name in suitable form in the names of organic compounds. "Deuterium" would seem to be as good a name as any. In this laboratory we are much interested in the highly symmetrical molecule, neopentane (tetramethylmethane). "Bar-neopentane" might apply to any of 34 theoretically possible compounds. When we are successful in our attempts to make a neopentane containing one heavy hydrogen, we shall call it either "deutero-neopentane" or "neopentyl deuteride."

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LIGHTNING PROTECTION FOR TREES

ON page 507 of SCIENCE for December 1, 1933, there appears a discussion on lightning protection for trees by Professor J. B. Whitehead, which lays down four principles upon which Dr. Whitehead believes that scientists are generally agreed. Two of these principles are in such violent contradiction to the views of most present-day specialists on this subject that I think attention should be called to the matter. The two principles are stated as follows:

> (1) The protective value of a lightning rod is in its ability to discharge continuously and so prevent an abnormal rise of potential gradient as related to an overhead cloud.
>
> (3) The points of a lightning rod should be relatively sharp to permit steady leak and suppression of the high potential gradient.

Experiments upon a laboratory scale give some justification for the idea that the point discharge will prevent the building up of sufficient potential to cause a disruptive discharge. Upon the scale met with in nature, the point discharge appears utterly incapable to prevent such an upbuilding of potential, which often occurs in a very short time. Professor Whitehead recognizes that the many dozens of points on the top of the Washington Monument have been unable to prevent it from being frequently struck.

Most of those who have given considerable study to this problem recognize that the discharges from the points of lightning rods have little, if any, value in preventing a stroke of lightning, and that it is not important that the points should be sharp.

The National Fire Protection Association, the American Institute of Electrical Engineers and the National Bureau of Standards have had committees working on this problem for many years and a Code for Protection against Lightning has been produced, which has the approval of these bodies and also of the American Standards Association. The 1932 edition of this code contains the following statement:

> The sole purpose of lightning rods . . . is to protect a building in case a stroke occurs, there being no evidence or good reason for believing that any form of protection can prevent a stroke.

The first principle stated by Professor Whitehead was at one time widely held but is now thoroughly discredited.

General experience with lightning rods indicates a high degree of protection. The differing opinion as to the value of the lightning rod now exists mainly in the minds of those who have not investigated actual experience with such installations. Failure to protect is usually found to follow failure in proper installation or maintenance. A typical cause of failure is a discontinuity in the conductor which makes connection to the ground.

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BRACHYCEPHALY AND GLANDULAR BALANCE

IN delving into ethnic geography, I have been struck by the fact that certain regions which have been breeding grounds of brachycephals are also conspicuous areas of endemic goiter. Searching further, I have found indications that certain other areas, conspicuous for brachycephaly, are reported as noticeably goiterous, although not included in the common lists.

It is common knowledge, moreover, that individuals who have removed from a non-goiterous to a goiterous area are much more subject to goiter than are the natives. Whether individuals of stocks which have resided in a goiter area for only a few generations are more subject to goiter than are auchthones, is not reported; but there are some indications that this is true. If so, certain other regions, agreeing in general character with goiter areas, but into which there