ence, which is numerically most important. Mr. Linderfelt's little volume presents the subject in an equally attractive though somewhat different manner, being based upon a German work by Professor Kirchhoff of the University of Halle. Each book contains a copious vocabulary, besides exercises in reading and translation.

Management of Accumulators. By Sir DAVID SALOMONS. 3d ed. New York, Van Nostrand. 16°.

IN the last few years it has been recognized that the treatment of secondary batteries has as much to do with their life and economy as the method of manufacture, especially in the 'grid' type of cell now generally used. No one has had more experience in the use of storage cells than Sir D. Salomons, and what he tells us is of great value to those who work with them.

The present edition of the 'Management of Accumulators' is much larger than the two previous editions, the principal increase being in the chapters on installation. The book is in no sense a treatise on accumulators: it gives but a bare and incomplete description of the chemical actions that take place, and does not attempt to describe any form of battery other than the grid type of the E. R. S. Company's pattern. Instead of this, it gives explicit directions for the care of batteries and the installation of an isolated lighting plant, and it gives estimates of the cost of installation under various conditions. The least satisfactory chapter — that on engines, dynamos, and electric motors — fortunately is the easiest dispensed with.

This book will be valuable to all those who have to do with storage batteries: it will possibly be out of date in a couple of years. The storage battery is being constantly changed and developed, but in the mean time it will have done a good work, and it is to be hoped, that, when the practice changes, Sir David will write a new book.

NOTES AND NEWS.

THE annual winter meeting of the Department of Superintendence of the National Educational Association was held in the hall of the Franklin School, Washington, D.C., on Tuesday, Wednesday, and Thursday of this week. An excellent programme had been prepared by President Dougherty, and the number of distinguished educators who delivered addresses was unusually large. The most important topics treated were, 'How and to What Extent can Manual Training be ingrafted on our System of Public Schools?' by Charles H. Ham of Chicago, Superintendent MacAlister of Philadelphia, Superintendent Marble of Worcester, President Nicholas Murray Butler of New York, Superintendent Powell of Washington, and Dr. Belfield of Chicago; 'How can the Qualifications of Teachers be determined?' by State Superintendents Draper of New York, Higbee of Pennsylvania, Finger of North Carolina, Kiehle of Minnesota, Easton of Louisiana. President Eliot of Harvard read a paper on the second day of the meeting.

— The October number of the *Monthly Weather Review* contains an interesting discussion by E. B. Garriott on the movements of high-barometer areas over the North Atlantic Ocean, founded on the daily weather-charts for 1885. In the *Weather Review* for July, 1887, it was shown that a cyclone's movement depends upon its position with reference to anticyclonic areas, and that during periods of high barometric pressure over mid-ocean north of the 40th parallel, storm areas do not follow the usual east-north-east course to European waters, but pursue a more northerly track, or disperse. In order to study the course of cyclones more closely than has been done heretofore, this investigation was carried on, and resulted in the discovery of the following facts. There exists almost continually an area of high barometric pressure south of the 40th parallel, and one of low barometric pressure farther north. Upon advancing from the American coast, areas of low barometer appear to move towards the region of low barometer, and areas of high pressure are apparently attracted to the region of maxima. The latter show a far greater degree of uniformity of movement than the cyclonic areas, their course and velocity being seldom influenced by the cyclonic areas that may precede or follow them. About ninety per cent of these anticyclones pursue a south-of-east course from the American coast, and, upon advancing to the vicinity of the 60th meridian, lose their individuality and become a part of the great anticyclonic system of that region. The average time occupied by the anticyclones of 1885 in advancing from the 90th meridian to the coast was about one and one-half days, this rate of progression being considerably greater than the average velocity of cyclonic areas over that region. As soon as an anticyclone is absorbed by the great anticyclonic system, the latter extends considerably westward, and therefore a cyclone closely following the passage of a high-barometer area takes an abnormal northerly course; and, on the other hand, the greater the period which exists between the advance of the areas from the coast-line, the greater will be the likelihood of the low-pressure area pursuing a normal path over the ocean. As in the normal movement of cyclonic and anticyclonic areas the latter more frequently closely follow and accelerate the forward motion of the former upon passing from the coast, they materially contribute to the greater rapidity of their advance over the ocean. The thorough study of the normal movements of anticyclonic areas over the continent and the western portion of the ocean, and of the relations which exist between high and low barometer areas attending their passage from the coast, will probably enable us to determine with a considerable degree of accuracy the course of cyclones across the Atlantic Ocean.

— It has been generally accepted that the translation of the name of 'Kongo' is 'the country of leopards,' the root *ko* meaning 'the country,' and *ngo* 'leopard.' J. Jankó, in the January number of *Petermann's Mitteilungen*, shows that this translation is not satisfactory, as, according to the rules of the Bantu language, these two words cannot be combined into the word 'Kongo.' He discusses the various forms of this word as found among the tribes of the Lower Kongo, — the Bakongo, who live on the river from its mouth to Stanley Pool; the Bateke, who occupy the regions between the Kuango and Kongo, and the Kongo and Alima; the Babuma, north-west of the last tribe; and the Bayanzi, between Leopold Lake and the Kongo. The Bakongo name of the river is 'Kongo,' that used by the Bateke is 'Songo,' and the Bayanzi say 'Rongo.' All these names are dialectic variations of the same word, the *k* of one dialect becoming *r* and *s* in the others. The meaning of the word in the Bayanzi dialect is 'spear,' and accordingly Jankó explains the name of Bakongo as 'the man with the spear;' the name of the river, as 'fast as a spear.' If this translation should be correct, it seems more probable that the name of the river was derived from that of the tribe. Jankó remarks incidentally that the root *ku* infers a motion, and that it is contained in the names of numerous rivers, such as Kuilu, Kunene, Kuango, Kuanza, which therefore must not be spelled Kwilu, Kwango, etc. It seems probable that the same root may be contained in the word 'Kongo,' and that the meaning 'spear,' which is, according to Jankó, confined to the Bayanzi, is also derived from this root.

— In controlling the movements of domestic animals by the voice, besides words of ordinary import, man uses a variety of peculiar terms, calls, and inarticulate sounds, — not to include whistling, — which vary in different localities. In driving yoked cattle and harnessed horses, teamsters cry 'get up,' 'click click' (tongue against teeth), 'gee,' 'haw,' 'whoa,' 'whoosh,' 'back,' etc., in English-speaking countries; 'arre,' 'arri,' 'jüh,' 'gio,' etc., in European countries. In the United States 'gee' directs the animals away from the driver, hence to the right; but in England the same term has the opposite effect, because the driver walks on the right-hand side of his team. In Virginia, mule-drivers gee the animals with the cry 'hep-yee-ee-a.' In Norfolk, England, 'whoosh-wo;' in France, 'hue' and 'huhaut;' in Germany, 'hott' and 'hotte;' in some parts of Russia 'haitä,' — serve the same purpose. To direct animals to the left, another series of terms is used. In calling cattle in the field, the following cries are used in the localities given: 'boss, boss,' 'sake, sake' (Connecticut); 'coo, coo' (Virginia); 'sook, sook,' also 'sookey' (Maryland); 'sookow' (Alabama); 'tloň, tloň' (Russia); and for calling horses, 'kope, kope,' (Maryland and Alabama); for calling sheep, 'konanny' (Maryland); for calling hogs, 'chee-oo-oo' (Virginia). Mr. H. Carrington Bolton is desirous of collecting words and expressions (oaths excepted) used in addressing domesticated ani-

mals in all parts of the United States and in foreign lands. In particular he seeks information as to (1) the terms used to start, hasten, haw, gee, back, and stop horses, oxen, camels, and other animals in harness; (2) terms used for calling in the field cattle, horses, mules, asses, camels, sheep, goats, swine, poultry, and other animals; (3) exclamations used in driving from the person domestic animals; (4) any expressions and inarticulate sounds used in addressing domestic animals for any purpose whatever (dogs and cats). References to information in works of travel and general literature will be very welcome. Persons willing to collect and forward the above-mentioned data will confer great obligations on Mr. Bolton. He is already indebted to many correspondents for kind replies to his appeal for the 'Counting-out Rhymes of Children,' the results of which have been published in a volume with that title (London, Elliot Stock). To indicate the value of vowels in English, please use the vowels-signs of Webster's Unabridged, and in cases of difficulty spell phonetically. All correspondence will be gratefully received, and materials used will be credited to the contributors. Address Mr. H. Carrington Bolton, University Club, New York City.

LETTERS TO THE EDITOR.

*** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

Twenty copies of the number containing his communication will be furnished free to any correspondent on request.

The editor will be glad to publish any queries consonant with the character of the journal.

Weather-Predictions.

MR. CLAYTON'S letter on weather-predictions, in the last *Science*, furnishes a very interesting comparison. I find in the Bulletin of the New England Meteorological Society for October, 1887, Mr. Clayton's interpretation and verification by his own rules of the government predictions. These are made generally for the whole of New England, but it is to be presumed that he has made a fair estimate so as to give a comparison with his own predictions for south-east New England. He gives the Signal Service 58 per cent, and himself 85 per cent. It now appears (see *Science*, Jan. 27) that precisely the same predictions, stripped of all ambiguity and narrowed down to a definite locality (Boston), give, by an application of the same rules, 96 and 80 per cent respectively. This striking difference of 43 per cent, in the application of the same rules of verification, shows the absolute need of a fair comparison in weather-predictions, and that, too, between similar things. X.

The Snow-Snake and its Name.

AS my notes on the snow-snake were written partly to elicit information, and partly to point out an anachronism, I am glad to receive so early a reply. I objected, by implication, to the use of misleading terms for what is probably an old game. I am also aware that a Southern Iroquois nation, for over one hundred and seventy years past resident in New York, now has the snow-snake and a name for it; but I did not and do not think the Southern winters appropriate for the game. The description to which I referred was in every way erroneous, and yet was made to have an historic air. But I wished also to learn the extent to which the game was played, North and South, East and West, and it is pleasant to be assured that it "was a favorite out-door sport of the Carolinian and Virginian tribes of Iroquois." I would esteem it a personal favor if Mr. Hewitt will kindly furnish quotations descriptive of its early use south of the James River. They will be prized by me and others, having escaped our attention.

A more important question is raised by Mr. Hewitt. My orthography of the word *ka-wher-tah* needs no correction, as spelling and pronunciation were given me by living Onondagas, not taken from lifeless books. But the point, rather incorrectly stated by Mr. Hewitt, is worthy of attention. It is not the case, as he says, that the letter *r* "does not occur in the speech of the Onondagas of the present time," but it certainly has become obscure and rare. In all our early records the letter is frequent: Zeisberger employed it largely in his Onondaga dictionary; in Schoolcraft's vocabulary I think it is found only in the numerals; among the present Onondagas it occurs but sparingly in proper names and other words. Some time ago my Onondaga friend, Sa-go-na-qua-der, sent me a version of the Lord's Prayer in that language. He was not sure of his spelling, and wished me to revise it with him when next at his house. The letter in question frequently occurred, but the sound was obscure. I went over the version with him syllable by syllable, to get the exact sound, and retained the letter four times as clearly enunciated.

It is probable that some Onondagas have given up the letter altogether, while others retain it, and this would account for variations in orthography. My work for many years has been mainly on the early history and customs of the Onondagas, and notes on their language have been but incidental. I am now offered assistance by them in this, and, if I can carry out a contemplated plan will pay especial attention to the question brought up by Mr. Hewitt. Until I have more original data, it would be out of place, for me to do more than justify my present use. The point is debatable, in a sense, but will require some critical research if we are to know the exact extent which the change has reached.

W. M. BEAUCHAMP.

Baldwinsville, N. Y., Jan. 30.

The Occipito-Temporal Region in the Crania of Carnivora.

IN the Proceedings of the Academy of Natural Sciences for 1886, p. 36, I briefly described, under the name of the post-tympanic bone, an ossicle which lies over the squamosal and opisthotic bones in *Ursus*. I have since examined *Amphicyon*, *Dinictis*, and *Archælurus*. I find that the inferior surfaces of the conjoined bones above named exhibit appearances which resemble those seen in *Ursus*, and make it probable that a post-tympanic bone of larger size than the ursine ossicle was present in these genera. Apart from the bone itself, it is noteworthy that the details in the structure and proportions of the squamosal and opisthotic, as they unite to form the post-tympanic process, afford characters by which these genera can be identified.

I have also found that the species of extant *Felidæ* can also be separated by characters of the tympanic bone, especially by the shape of the tympanic ring, i.e., the part of the tympanic bone in advance of the septum. HARRISON ALLEN.

Philadelphia, Feb. 7.

Monocular versus Binocular Vision.

THERE is an interesting phenomenon which is new to the writer, and which very beautifully illustrates the prevalence of monocular over binocular localization. This explanation which we suggest may or may not be true, but it will certainly lead the way to a better comprehension of the fact in case it cannot be accepted as we explain it. We mention the phenomenon as much to ascertain whether it can be verified by others as to point the way to its explanation. It certainly has an interest in the question regarding the perception of distance and the localization of images in stereoscopic combination.

Take two circles, as in Fig. 1, and combine them by crossing the eyes in the ordinary way. We shall see, as is well known, three circles in the field of view, the central one the combined result of two images, and apparently nearer to us than the other and exterior circles, and nearer also than the sheet of paper upon which they are drawn. It is possible that to some experimenters the central circle does not seem nearer than the other two: to the writer it always does. If we combine them by fixating the eyes beyond the plane on which they are drawn, the central circle will appear larger and farther off than the other two. So much, however, is not new, but it is a necessary preliminary to the singular phenomenon which we have not noticed in any investigation of binocular vision. It is also known that the observer can place a pencil or pin point at the apparent location of the central circle, and it will seem to coincide with it, and there is no hesitation in placing it at a point between the sheet of paper and the eyes.