Such faulty and inaccurate work must necessarily shake the confidence of scholars in the trustworthiness of the results of linguistic methods and theories such as those herein criticised.

To allow etymologies and methods of linguistic research such as those just criticised to pass unchallenged, and to leave them without pointing out the misconceptions upon which they are based and the fanciful reasonings wrought in their support, would be tantamount to accepting error and fancy for truth. Although it is proper to deprecate "wasting our time in minute verbal criticism of the work of our fellow-students," yet it is difficult to avoid seeing that it is imperative on scholars, in every department of science, to test the work of their fellow-investigators by rigid and discriminating analysis; and, if they fail to perform this their most evident duty, the student unfamiliar with the subject-matter will be left to assume that faulty and inaccurate work rests on a foundation of fact, and will be more than likely, especially in the beginning of his career, to make it the basis of further research, and, of course, new error.

In conclusion, it should be borne in mind that those who will not, personally and without preconceptions, study this language, and who appear to be unable to see any thing on which the light of their theories does not fall, and who do not "profess to distinguish the niceties of Indian pronunciation," although these so-called nice distinctions are, in fact, the marks and indices of essential grammatic and morphologic elements, must not hope to accomplish, in the domain of Iroquoian etymology and morphology, trustworthy and accurate work.

J. N. B. HEWITT.

Washington, D.C., Jan. 28.

A Double Motion of Clouds.

IT is generally accepted that our storms and high areas drift in the upper currents of the atmosphere, and that the direction of motion of clouds will give us important information as to the direction of the former. The present writer has devoted most careful attention to this subject for more than three years and a half, and has found that while clouds, especially the higher forms, have a general tendency to move in the same direction as storms, that is, from west to east, yet they are a very poor guide to follow in special instances, and they fail especially at times when such assistance is the most needed. This may be in part due to the fact that the upper clouds cannot be seen in the neighborhood of storms, and in part to the difficulty of estimating the height of clouds. In the case of high areas, the clouds frequently are less than three-tenths, and, if so, their direction does not appear on the maps. Much time has been spent in watching the motion of clouds at all hours of the day, and it is possible that a very important factor in their motion has been omitted.

Every one has remarked the beautiful cirrus stripes which are often seen traversing the sky, usually from south-west to north-east. I have gleaned the following statements from various authorities. Van Bibber speaks of them as resembling trees on the streets. This probably refers to the narrowing effect due to perspective. He also says, "These formations were given by Humboldt the ill-suited name 'polar bands.'" Kaemtz says, "In Germany these clouds are known under the name of 'wind-trees' (*Windsbaüme*)." In a footnote Martius says, "The tendency which the cirri have to arrange themselves in parallel bands is remarkable; and it proves that the cause which directs their filaments to one azimuth rather than another, instead of being merely local and accidental, extends to great distances. By a well-known law of perspective, parallel bands ought to appear diverging from one point of the horizon, and converging at the point of the horizon diametrically opposite. The phenomenon occurs more frequently in Lapland than in the temperate zone. Humboldt found that at the equator the bands were generally directed from north to south. The cause, which thus arranges the great axes of these clouds according to parallel lines, is still unknown. Forster was the first who made the very just remark that these clouds almost always travel along a parallel to their great axis, which greatly contributes to render them apparently motionless. Many meteorologists (Howard, Forster, Peltier) seem to believe that the cirri serve as conductors between two distant foci of electricity, of opposite names, which tend to combine, and that the flexibility of the conducting clouds terminates in the rectilinear form, which is necessitated by the condition of the shortest path from one focus to the other." Loomis says, "The direction of the parallel bands generally coincides with that of the wind, and it has been suspected that these lines of cloud serve as conductors of currents of electricity, and this may be the agent which causes the clouds to assume such artificial forms." A more guarded statement than this it would be difficult to put forth.

Abercromby of England has probably given more attention to these motions than any one else. He speaks of the appearance as being known as "Noah's Ark" in England. "Frequently we see the curious spectacle of a long stripe of cloud moving either broadside on or obliquely to its length. As we must suppose that a stripe always sails with the wind in which it floats, we have to find out how a stripe can be formed which moves across its length. At first sight, this is one of the most puzzling phases of cloud-motion. These formations of clouds are, however, exactly analogous to the smoke left by a steamer running before the wind. If she runs faster than the wind, her smoke trails behind; but if the wind blows faster than she steams, then the smoke is blown forwards in front of her." He then shows that if the direction of the steamer is not that of the wind, the line of smoke will form an angle with the former. "Now, this is exactly what happens in nature. The ascensional column of moist air, which will eventually form a cumulus, starts from near the earth's surface, drifting with the wind which blows there; when it arrives at a certain height, it meets an upper current moving in a different direction to that on the surface, and probably begins to condense there. The stripe which would be formed under these circumstances would behave exactly like the smoke of a steamer; that is to say, it would lie obliquely to the wind which was driving it." Any one who is desirous of learning more of these views and observations will find them in "Weather," pp. 84–91.

I have made these quotations very freely from all the authorities I have at hand, fourteen in all, as it seems to me the subject is of the highest importance, and has been very much neglected up to the present. My own observations are as follows. In a perfectly clear sky these clouds will come up from the south-west, and move gradually to the north-east. When the stripes are over head, a double motion is often very easily recognized. One of these may be quite rapid, and I have often noticed that it coincided with the north-west wind or at right angles to the stripe. From observations on Mount Washington and of cirrus in Europe, this velocity may be a hundred or even a hundred and fifty miles per hour. At the same time, it is not a difficult matter to recognize a second motion directly in the line of the stripe. This motion may be a third or a fourth that of the other, and sometimes it is very much slower. Observation indicates that this second motion is often, if not always, in the direction of the storm which is then near the station. If this can be incontestably established, it will be seen what an extraordinary advance will be made in our studies. We shall see, then, that this marked movement of the upper current which first attracts our attention, and so often masks the second motion, is, after all, the less important as relates to the movement of the storm. The greatest interest centres about the cause of this second motion. It is evident that these stripes do not form conductors of electricity, because their motion occurs in lines where there are no clouds. Is it not probable that this current exists in the first place? During the last maximum of sunspots, I observed very carefully an electric light playing in cirrus stripes in my zenith, and mentioned the fact to others. I have also observed a motion in auroral beams which was not so very different from this second motion of cirrus stripes. The suggestion made by Mr. Abercromby, that this second motion takes its origin in a lower cloud, which keeps its direction after rising to a higher level, cannot be accepted at all. Such a motion as that would be very quickly brought to rest instead of being in existence for a hundred miles or more. Moreover, the origin of these beautiful and regular cirri cannot possibly be in irregular masses of cumulus rising heterogeneously from a lower to a higher level.

It seems to me that there are needed just now a careful series

of observations, showing (1) the extent of this second motion on different sides of a storm or high area, (2) the relation of the direction of this second motion to that of the storm or high area, (3) the cause of this motion, etc. At the same time, the facts and views here presented show that this subject is of the greatest interest, and may be of the highest importance.

H. A. HAZEN.

Washington, D.C., April 11.

BOOK-REVIEWS.

Die Mutter bei den Völkern des Arischen Stammes. By MICHAEL VON ZMIGRODZKI. Munich, 1886.

La Question de la Femme c'est la Question de la Mère. By MICHAEL VON ZMIGRODZKI. Paris, 1890.

Zur Geschichte der Suastika. By MICHAEL VON ZMIGRODZKI. Munich, 1890.

THE application of the facts drawn from ethnology and archæology to the practical social questions of the day is one of the new and valuable acquisitions of science. Being new, one may reasonably expect that some time will elapse before it is employed with the best advantage; but meanwhile all honest and earnest efforts in this direction should be respectfully considered.

One such is before us in these works of the Polish writer Zmigrodzki. Appreciating that the position of woman in the social organization is the test of its excellence, he reviews the growth of the Aryan nations, both anthropologically and historically, and seeks to draw from his material the wisest rules for the place of woman in the present and the future of European and general civilization.

Without discussing the mass of learning on which he founds his conclusions, it is worth while stating what these are. He first urges that both sexes have naturally, and should be guaranteed legally, absolutely equal civil rights, equal opportunities for gaining an independent livelihood, equal wages, equal admission to all professions, avocations, and State employments. No marriage should be allowed until the woman is twenty and the man twenty-five years of age. The ceremony of marriage should be religious only, and the bond should be indissoluble, divorce for any ground being inadmissible. Illegitimate children should inherit equally with legitimate, and prostitutes should be condemned to forced labor for two years. During pregnancy, a woman who is earning salary or wages should have her income continued without labor on her part.

It is evident how impracticable and even grotesque are some of these recommendations; but, as they are founded on a supposed logical development of the theory of the equality of the sexes, they are interesting as illustrating the inherent difficulties in the way of this theory. There is also an evident desire on the part of the author to square his conclusions as much as possible with the precepts of the Roman Church, which obviously hampers his freedom.

His pamphlet on the Svastika is an endeavor to prove that this mysterious symbol is strictly Aryan in character, and is connected with the *Mutterrecht.* He seems to forget that his extreme devotion to the Aryan history and culture is often in rather ludicrous contrast to his obeisances to the Semites, Moses, Luke, Peter, etc., whom he frequently quotes, and whose religion he has adopted, as distilled through Roman alembics.

The American Race: A Linguistic Classification and Ethnographic Description of the Native Tribes of North and South America. By DANIEL G. BRINTON, A.M., M.D. New York, N. D. C. Hodges. 8°. $2.

FOLLOWING close upon his "Races and Peoples," which appeared last year, the present volume is a further evidence, if such were needed, of Dr. Brinton's untiring devotion to linguistic and ethnographical studies. "The American Race" is the first attempt to classify systematically the peoples of the continent of America, who are its aborigines, upon a basis of language, — a basis of classification which would seem to be more safe and more useful in America than in any other quarter of the globe. In his use of language as a classifier of peoples, the author attaches primary importance to grammatical construction, although he admits that our knowledge of the grammar of some American peoples is very meagre.

In his introductory remarks, Dr. Brinton reviews the general aspects of American anthropology, touching upon the various theories advanced regarding the peopling of the New World, the age of man in America, the glacial epoch, racial traits and characteristics, arts, religion, languages. His conclusions are that there is an "American race," and that primitive American man in all probability migrated by way of the North Atlantic land-bridge from the Eurafrican continent.

He divides the American race into five great groups: I. The North Atlantic group; II. The North Pacific group; III. The Central group; IV. The South Pacific group; V. The South Atlantic group.

As regards "temperament, culture, and physical traits," Dr. Brinton considers that there is a "distinct resemblance" between the North Atlantic and the South Atlantic groups, and that there is "an equally distinct contrast" between these and the Pacific groups.

Of the main portion of the book, pp. 59–164 are occupied with the discussion of the peoples of North and Central America; pp. 165–332, with those of South America. The "Linguistic Appendix" (pp. 333–364) is invaluable, containing comparatives, vocabularies (of sixteen words and the numerals from one to five) in no fewer than one hundred and twenty languages and dialects of Mexico, Central and South America. Dr. Brinton's characteristic wealth of suggestion appears throughout the book, particularly in the portions which deal with the peoples of Central and South America, to whom special attention appears to have been given.

In the North Atlantic group are classed (1) the Eskimo, who formerly ranged much farther south, and whose primitive home was in the Hudson Bay region; (2) the isolated Beothuks of Newfoundland, who appear to have no marked affinities, as far as language is concerned, with any other people; (3) the wide-spread Athapascans, who are found over the wide territory from the Arctic Ocean to the frontiers of Mexico, and from Hudson Bay to the shores of the Pacific; (4) the Algonkins, who inhabited the North Atlantic littoral and the lake region of Canada; (5) the Iroquois, an inland people, with whom are affiliated in language the Cherokees; (6) the Chahta-Muskokis; (7) diverse tribes, such as the Catawbas, Yuches, Timucuas, etc., whom the author believes to be the remnants of the peoples who occupied the region before the immigration of the Muskokis from the North and West (it would appear, however, that to these Allophyllian tribes the Catawbas, at least, no longer belong, as they have distinct affinities with the Siouan stock); (8) Pawnees or Caddoes; (9) the important Dakotan or Siouan stock; (10) Kioways.

The North Pacific group comprises the tribes of the North-west coast and California, besides the Yumas and Pueblo peoples. There is room for much research within this group of tribes; and the recent investigations of careful observers like Dr. Boas have cleared up not a few troublesome questions in the ethnology of the Pacific region.

Under the Central group Dr. Brinton classes the Uto-Aztecan (comprising the Shoshonian, Sonorian, and Nuhuatl); the various tribes of Mexico and Central America, such as the Otomis, Zapotecs, Chapanec, Chontals, Mayas, Lencas, Musquitos, etc.

Here for the first time we learn the affinities of some of the Central American languages; such as the Rama, for example.

The chapters of the book relating to South America are more detailed, and the reader will find in them an excellent guide with which to thread the mazes of South American tribal nomenclature.

The first great division of this half of the continent is the South Pacific group, which embraces (1) the tribes of the Columbian region, and (2) the tribes of the Peruvian region. The principal Columbian peoples are the Cunas, Changuinas, Chocos, and others of the Isthmus of Panama and the adjacent coast, the well-known Chibchas, the Paniquitas and Paezes (identified as one by Dr. Brinton), and the various tribes of the southern states of Cauca and Antioquia. In this region the author determines the Cayapa and Colorado to be dialects of the same stock.