to know that patches of eternal snow are here found in a latitude of 37° S., about 1,500 feet lower than in the European Alps in a latitude of 47° N. In Australia the snow comes as far down in 37° as in Europe in 52°. In New Zealand the snow and ice are much more extensive than in Europe at a similar latitude. This proves that the southern hemisphere is colder and damper than the northern.

The fossil remains furnish much evidence regarding the changes of climate from time to time. The fossil plants of the Pliocene indicate a much warmer climate, more humid and equable than the periods following. The sudden banishment of this semi-tropical flora shows that a great climatic change must have supervened in post-Pliocene times, due no doubt to the glaciation of the southern regions. A small pine (Pherosphœra) intermediate between a Lycopodium and a juniper is still found in one locality adhering to the cold, shady, constantly wet cliffs near the falls at Katoomba, on the Blue Mountain. This is a Tasmanian genus and is a remnant of the flora which succeeded the semi-tropical pliocene vegetation.

Much more conclusive evidence of such a change is furnished by the remains of extinct animals, which now live only in Tasmania, where the mean annual temperature is 7° lower than in the locality where these remains are now found. The Pleistocene inhabitants of New South Wales included many remarkable animals. There were the huge carnivorous pouched lion (Thylacoleo); diprotodon, an animal holding the same place amongst the Australian mammals that the pachyderms do amongst the fauna of other continents; the nototherium, another large herbiverous animal; the very large horned lizard, megalania; and the flesh-eating notiosaurus. The kangaroos, wombats and echinids attained far larger dimensions than at present, and the remains of crocodiles have also been found. Wherever the soil was favorable the country must have been covered with a rich vegetation for the support of this army of herbivores. The precise character of the flora cannot yet be determined; but this much is certain, that these gigantic animals have been extirpated by some means or other. Sir Richard Owen suggests that man was the cause, but of this there is no conclusive proof. On the other hand, striking evidence has been afforded by the dryness of the last few seasons, of how quickly, through want of rain, savannahs of waving grass may be converted into desert-like plains; and the immediate influence of these climatal changes on the fauna is fully attested by the numbers of kangaroos and emus which died last year through want of sustenance on the western plains.

Fragments of bones of the extinct mammalia are met with in the gravels and clays at a depth of over seventy feet from the surface, and their occurrence in such quantities and variety seems to point to a scarcity of water which would alone bring so heterogeneous an assemblage of animals together. The occurrence of remains of the crocodile attests to a previous abundance of water. Stinted in food supplies and unable, because of their great bulk, to migrate rapidly or adapt themselves readily to the altered conditions of life, diprotodon and the other large herbivores perished by degrees from the combined effects of want of sustenance, the raids of predatory beasts, and possibly the attacks of man. The last terrible struggle for existence as the supply of water failed, must have been beyond description. Now none of this vast horde remains; but their likeness may still be traced in the native bear, wombat, kangaroo, etc., which still survive on the mountain ranges and plains as the comparatively pigmy types of their gigantic predecessors.

A CONVENIENT SYSTEM OF RIVER NOMENCLATURE.

EVERY tyro in geography has learned that the Mattapony and Pamunkey are the two streams that flow into the head of the so-called York river, which is simply an estuary of Chesapeake bay; but few, I imagine, have ever been told how the first of the above names is compounded, since its tributaries are too small to be named on ordinary school maps.

A few weeks since, on approaching, the sources of the Mattapony from the north I was a little surprised at hearing the inhabitants place the accent on the last syllable in pronouncing it. Presently, coming to a brisk little mill stream and inquiring its name, I was informed that it was the *Ny* river. Soon crossing a second of about the same size, I learned that this was the *Po*. Still a third was passed not long after and this rejoiced in the name of *Ta*. Turning to the eastward soon after crossing the Ta, and proceeding some distance down the course of the river system to below the union of all three of these tributaries and crossing back over the combined stream, this was found on inquiry to be the *Tapony*. At last the mouth of the Mat was passed, only below which the river is recognized as the Mattapony. Between the junction of the Ny and the Po and above the confluence of the Ta it is said to be known as the *Pony*, although this particular portion was not traversed and this name not heard used by the in-

habitants. The system of nomenclature is, therefore, complete and symmetrical.

It is due to the people living among these streams to say that they all understand perfectly, and fully appreciate this system of naming, and, indeed, seem proud of it and anxious to explain it to strangers. So extremely simple is it that even the negro hands use it with perfect accuracy.

It occurred to me that this case might furnish a valuable suggestion to geographical explorers who are constantly called upon to give names to unknown water courses. If, instead of assigning polysyllabic names to all streams, which must be learned by the public as so many independent facts, they would use monosyllabic names for the ultimate tributaries, capable of easy composition with one another, and then designate the successive trunks formed by these tributaries by the compound word formed by their names, a rational system of nomenclature would result which would unite any river system practically under a single name, and still leave not only every tributary but every part of the main stream with a distinctive appellation. I merely throw out the suggestion without attempting here to specify such practical limitations to the general principle as will naturally occur to geographers who might contemplate its actual adoption. LESTER F. WARD.

RACIAL CHARACTERISTICS OF JEWS.

The Journal of the Anthropological institute of Great Britain for August brings a discussion on Jewish race characteristics of somewhat unusual interest. The question itself is not a new one, but the mode of presenting it is. The fundamental question involved is: "Is the race of modern Jews a pure one or not?" Hitherto the historical aspect of the problem has almost exclusively been considered in the present discussion. Mr. Joseph Jacobs, B. A., shows that anthropology and anthropometry have a distinct voice in the matter. His paper is equally valuable for the information he sets before us, as for its bearing on the ultimate question.

Mr. Jacobs argues thus: Apart from the historical record of intermixture with foreign people, an indication of the pure or wild origin of the race ought to be attainable from the study of the physiological and psychological traits of the Jews of today. These traits would be included in their (1) *vital statistics* and in their (2) *anthropometry*, or bodily measurement. Having determined in what ways they differ from their neighbors in the above respects, we are met by the important but intricate problem with which Mr. Galton has familiarized the public,—Do these peculiarities point to a racial or a social cause? are they due to differences of 'nature' or of 'nurture?'

There are now living about 7,000,000 Jews; (*a*)[1] 98.9% of these are Jews both by birth and by religion; (*b*) 1.1% are Jews by religion only, and (*c*) 2% by birth only. The last two classes are important anthropologically, but reliable information about them is wanting. In the Jew whom we know, racial and social influences have been working hand in hand, and the problem of separating them is unusually difficult.

From his former studies, Mr. Jacobs takes the following statements: 1. Jews have a less marriage rate, less birth rate (both due largely to the less mortality of Jewish children) and less death rate than their neighbors. 2. They marry earlier. Cousins intermarry more frequently, perhaps three times as often. 3. Jews have larger families, though fewer plural births. Mixed marriages with foreign races are comparatively unfertile. 4. Among Jews male births are more frequent, still births and illegitimate births less frequent than in the average population. (Amongst the illegitimate births the proportion of still-births is not less.) 5. Jews have a smaller mortality of children under five. (Not true of Jewish illegitimate children.) Deaths over 60 are more frequent; suicides are less frequent than normally. 6. Their claim to immunity from certain diseases (phthisis, cholera) is doubtful. They are apparently more liable to diabetes and haemorrhoids, and have proportionately more insane, deaf mutes, blind and color-blind. 7. A vast majority live in cities. They have a larger ratio of poor.

Many of these divergences are evidently of social origin, such as the frequency of consanguineous marriages, the smaller proportion of suicides and of illegitimate births. Moreover, the fact that the illegitimate do not share the advantages speaks for the importance of social influences. There remain as probably racial only four biostatical points. These are 1. the less number of twins and triplets; 2. the infertility of mixed marriages; 3. the greater longevity of Jews; 4. their alleged special liability to disease. Of the causes of (1) we know nothing; (2) is of sufficient importance to merit a review of the evidence on which it rests. In Prussia between 1875 and 1881, 1,676 such mixed marriages resulted in 2,765 children, an average of 1.65 per marriage; while the average for pure Jewish marriages was 4.41,—*nearly three times as great.* In Bavaria (1876–80) 67 such marriages showed an average of 1.1 against 4.7 for pure Jewish mar-

[1] This class is formed of (1) *Ashkenazim* or German-Polish Jews, forming 92.8% of the whole, and (2) *Sephardim* or Spanish-Portuguese Jews 6.1%.