

THE NORTH WIND.

to the Editor.

Sir — Everyone in South Australia feels the effects of the north wind, therefore I need not offer any excuse for writing about it, for all must be interested in the subject, although few like it. The more I think about Mr. Todd's explanation, given in your answers to correspondents last week, the less can I agree with him that it is "caused by the equatorial current which passes southward at some distance above the earth's surface, descending," &c. The whole theory of the reason why the trade winds have a certain direction, why the winds in the higher latitudes of the temperate zones are mostly westerly, and that revolving storms turn in the way they do in the different hemispheres, is based on the assumption that apparently still air has the same velocity as the earth's surface which it touches, and that if by any cause it is transferred in any direction so as to become wind, it still retains the greater part of its original velocity through space as a component of its force and direction. The equatorial current ascends where the surface of the earth has its greatest speed, and in this hemisphere passes southward, or more correctly south-eastward. If it descends to the earth in this latitude I do not understand how it can be a north wind, because it has an easterly motion so much greater than the motion of the surface here, therefore it seems to me it must come down as at least a north-west wind. Besides, from moving at the altitude it does, the equatorial current must have become cold when it reaches this latitude ; and although it would no doubt carry the hot air of the surface along with it at first, the result could scarcely be for it to blow as a hot wind for days together.

I believe the north wind is produced by purely local causes, for the following reason: — In the first place, the question of your correspondent needs qualifying. He says, "Why do the hot winds blow towards the cool south regions?" which, if they did, would appear to be in opposition to the general law that the indication is always to blow from where the air is cool or dense to where it is hot or rare. They do not at first blow from hot towards cooler regions, because at the times when they occur the southern half of South Australia is warmer than the northern. This is sufficient to generate a north wind from where they usually commence, i.e., about 300 miles, more or less, north of Adelaide. Once started in any direction the air has a great power of maintaining its movement in that direction, and as the north wind still finds considerable heat as it moves southward it continues to blow until it reaches the ocean, and then, comparatively, it suddenly stops. Usually, when it is blowing a strong north wind at the shore twenty-five miles at sea it is a calm, except at night, when the wind comes off in the nature of a land-breeze. Of course, in speaking of the sea I mean outside the two Gulfs ; they may be said to be landlocked for this purpose, though, owing to Spencer's Gulf being more open to the ocean the action of the wind there is more similar to what it is outside than in St. Vincent's Gulf. As a parallel case, but of infinitely greater magnitude, to show how local causes may produce winds directly opposed to the general direction of wind in the same latitude — a characteristic of the north wind here— I need only in stance the south-west monsoon in the China Sea, which for nearly six months in the year, while the sun is north of the Equator, blows with great force over the area between the coast of Asia and the chain of islands running from Borneo to Japan, and over nearly 2,000 miles of latitude starting from the Equator; the wind outside the islands mentioned over the North Pacific, in the same latitudes, being the north-east trade, from exactly the opposite quarter.

The principal cause of this phenomenon appears to be that the average heat of the south part of China is greater in the summer months than that of the countries south-west and the sea southward of it, and the wind continues from the south-west considerably to the north ward of where the heat is greatest, just as the north wind here continues after it has passed the region of average highest temperature.

The north wind and its heat are dissipated either by a north-west gale, which takes the usual course and finishes at south-west, or by a direct charge to south-west. In the first in stance I imagine the atmospheric conditions are such that the equatorial current can descend, and it appears as a north-

west gale ; in the other instance the heat has probably extended some distance to the southward, where the equatorial current has descended, and it consequently arrives here as a south-west wind, or it may be a local result of the cool air over coming the hot, without any interference from above. A reason in favour of this argument is that the former, or north-west gale, is usually the termination of north winds in winter, and the latter— a direct change from north to south west — their end in summer.

In coming to a conclusion on this subject there are many side issues to be considered. All I can think of appear to be in favour of the above. I will not attempt to state any, as I fear I have already trespassed too much on your valuable space. I am, Sir, &c, PALINURUS.