

## THE ZOOLOGICAL STATION AT NAPLES.

IN NATURE of February 26 (p. 392) a friend of the Zoological Station of Naples has raised his voice to correct one or two misconceptions which, as he thinks, have been the cause of the difficulties, experienced at the last meeting of the British Association in Leeds, in obtaining the renewal of the vote for the occupation by British naturalists of a table in the Zoological Station. While thanking him, I should wish to be allowed to add some remarks to the arguments used in that article.

If opposition to the continuance of the table was really based on the ground that the Zoological Station is in the main an educational institution, nothing would be easier than to show that this is a fundamental error. In fact, the whole conception of the Naples Zoological Station was to found an institution meant *exclusively* for research, and this conception has been carried out in every way. Not only more than six hundred naturalists of various nations have worked for months and years in the laboratories of the Station; not only from six to ten assistants have been occupied with research all these years through; but the Zoological Station has sent ever-increasing numbers of well-preserved marine animals to almost all the greater and many smaller European and other laboratories for pure ends of research. By all this the Zoological Station has almost revolutionized the conditions of biological research; it may yet be the cause of greater changes through the arrangements that it is just now finishing to enable physiologists to carry out experimental and chemical studies on marine animals and plants.

One educational exception is, perhaps, worth recording. The Zoological Station has admitted during the last ten years naval officers and physicians from Italy, Germany, Russia, and Spain, for the purpose of instructing them in the art of collecting and preserving marine organisms on their voyages through the oceans, and I am glad and proud to say that the collections brought home by the Italian corvette *Vittor Pisani* have earned not only well-deserved fame for Captain Chierchia, but have proved to be really the solution of the problem how to add numberless treasures of the oceans to the stock of inland laboratories for research, and to do this by the simple expenditure of a few thousand francs. The example set by the Italian naval authorities has been followed by the Russian Navy, after a visit to Naples by the present Minister of the Navy at St. Petersburg, Admiral Tchichatchoff; and splendid collections from the Pacific and the Indian Oceans, made by the naval physician, Mr. Isnaeff, have been added to the stores of the Moscow and St. Petersburg collections. I still hope that other navies may follow in this line, and I am sure that naval officers and physicians on board as well as naturalists at home would be greatly satisfied if the Italian and Russian examples became more generally imitated.

I am pleased at this opportunity of calling attention to the only case where the Zoological Station made use of special instruction as the most effective way to promote research. All the six hundred naturalists who have worked during eighteen years in the Zoological Station have done so relying only on their previously acquired education in Universities at home and abroad, and if even they went away from Naples better instructed than they came, it is simply because no one is more fitted to profit by example than he who already understands.

Let me now treat of the second objection, of which the author of the article speaks, regarding the "policy of continuing to support an already thriving institution for an indefinite period."

It is obviously more difficult for me to discuss this objection, and especially so after the author of the said article has once more most distinctly called the Zoological Station at Naples "Dr. Dohrn's Station." The author

is right in calling me the founder, director, and proprietor of the Station, but I wish most distinctly to point out that my proprietorship involves only a burden and responsibility, and no advantage whatever of a material kind. I am a creditor to the Zoological Station, like other creditors, but with the clear distinction that my material liability is unlimited towards the other creditors, and my moral liability limited to that *imponderabile* called the public opinion of the whole scientific, and a great part of the unscientific, public, which takes an interest in or contributes to the maintenance of the Zoological Station.

But this same unlimited liability may excuse me if I take the liberty to state unrestrictedly the necessities and the conditions under which I hoped to succeed in an enterprise which, when I began it, was considered fantastical, almost Utopian, by many, perhaps by most, of my fellow-workers in biology. I meant from the very beginning to create an international institution, and I counted upon the loyal and lasting co-operation of all those, in whatever country, who understand the extraordinary importance of seaside studies, and who know from experience how difficult progress in biology had become from want of appropriate laboratories near the sea. I hoped, further, to enlist as supporters of the Naples Station all those naturalists who, with me, put the general interests of biology higher than the personal predilection for this or that branch of biological pursuit, and who could help me in securing the material support of Governments and learned bodies for the new institution, which was created under considerable difficulties, and for which I had undertaken to act as a responsible manager. To find myself without that co-operation could alone make me regret the labour and loss that I so incurred.

The author of the article calls the Zoological Station "an essentially German institution," and seems to believe France justified, "in view of national prejudice and having zoological stations of her own," in not having subscribed for one or more tables in the Naples Station. In fact I am German both by birth and culture, and shall remain so to the end of my days, and so are the greater part of my assistants, who have staked like me their existence on the prosperity and efficiency of the Zoological Station of Naples. But the very name of Naples indicates that one might quite as well call it an essentially Italian institution, and the more so as among my assistants there are several Italians of no less importance and service to the Zoological Station than my compatriots, and as Italy like Germany has behaved most generously in supporting the Station.

But I think the time has come when one must raise one's voice most distinctly against the narrowing limits of national prejudice, which nowadays has grown to almost overwhelming and even pernicious importance in many provinces of material and—I am sorry to say—also moral and intellectual existence. Science at any rate ought to be exempt from that morbid exclusiveness which refuses to act in rational community regardless of political or ethnographical boundaries. When I left my country to found the Zoological Station at Naples, I acted simply in the interest of science. I would certainly have preferred to found the Zoological Station in Germany if Germany had offered the same scientific advantages as Naples; or I would have gone to the North Cape or Ireland, if I had been convinced that biology were best served by building a station there instead of in Naples. My choice fell on Naples because I was and am still convinced that no place in the world combines so many advantages for biology as Naples, and no other place would so readily induce others to follow the lead which—it was, perhaps, presumptuous in a young man of thirty years of age—I, with the daring of just these thirty years, believed myself capable of taking, and even entitled to take.

As for France not following the example of almost

all the other European nations, allow me to state that Claude Bernard, the great physiologist, asked the Minister of Public Instruction, M. Bardoux, to rent four tables for French naturalists at Naples; and if this has not been achieved, there comes in a greater obstacle than national prejudice—the untimely death of the great physiologist. I believe, indeed I know, that even now a view is predominant among some of the highest authorities of the French biological school, that France ought to be represented at Naples, and it is regretted in some quarters that “national prejudice” is allowed to triumph over those higher aims of the French mind, to which science, as we all know, owes such splendid manifestations and such grand achievements.

I do not know whether it is a better position to plead for the abstinence of France in view of the several French zoological stations; but as Austria has not ceased to rent tables at Naples though in possession of a national station at Trieste, so France might have found it well worth the outlay of an annual £100 to have a share in the maintenance and profitable use of the largest and the only international biological laboratory existing.

If it be alleged that the Naples Station is now a thriving institution, and not any more in need of being supported, as in the case of the table rented by the British Association, I am glad that the author of the article in NATURE gives the account of the receipts and expenditure of the Naples Station, and finishes with the statement, that “the Station would be carried on at a considerable annual loss were it not for the magnificent subsidy of £2000 a year, granted to its support by the German Empire, which just covers the deficiency.” I think this statement answers more than fully the question of the desirability of the “international” support of the Naples Station. If it were true that the Station was essentially a German institution, the German Empire would certainly not ask for the support of any other State or foreign Association, but would receive foreign naturalists as guests in a laboratory maintained for the benefit of its own subjects. But the scientific and international importance of the Naples Station is so unrestrictedly recognized at Berlin, that whilst there is a movement on foot to create in Heligoland a “Prussian” biological station for home interests, I am distinctly told that this will in no way interfere with the generous subsidy given by the German Government to the Naples Station.

I believe myself to have been the first to suggest the formation of a net of zoological stations round the globe, and have been either actively or morally helpful in the formation of most of those now existing. If I have not carried out an old plan to assist personally in the creation of a Zoological Station at Sydney, which I considered, and consider still, of the highest importance to science, it was in deference to the remonstrances of my late friend Prof. F. M. Balfour, who insisted even more than myself upon the supreme necessity of a powerful central establishment of the kind, and opposed, even for a time against my own opinion, the plan for the foundation of a British biological station, on the ground that it was too early, and would so interfere with the thorough development and maintenance of the Naples Station.

And I think I ought not to conclude without once more respectfully and gratefully recording the splendid gifts of some British naturalists, headed by the late Mr. Darwin, to the Zoological Station, which, in a dangerous moment, went far to protect me, at that time, still isolated and not generally recognized efforts from falling short of the end in view. May these two names be suffered to test the high and purely scientific character of the Naples Station, and may this reference to them help to maintain the ties which, from the beginning, have been established between it and the British biologists.

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THE HIGH-PRESSURE AREA OF NOVEMBER 1889 IN CENTRAL EUROPE, WITH REMARKS ON HIGH-PRESSURE AREAS IN GENERAL.

UNDER this heading Dr. Hann, of Vienna, has recently had a memoir published,<sup>1</sup> in which he gives in detail and discusses the meteorological conditions and circumstances in the high-pressure area which remained nearly stationary over the Alps and the circumjacent territory in November 1889, during fourteen days. On November 6 there was high pressure over the Atlantic Ocean, France, and the southern part of England. On the morning of the 11th the centre lay over the North Sea, and on the 12th it was transferred to Central Europe, and nearly the whole of Europe was comprised within the high-pressure area, which continued until the 25th. During this time there was low pressure over the extreme north-west, north, and north-east of Europe, but no distinct storm-centre up to and even beyond the 60th parallel of latitude. The centre of high pressure, 780 mm. reduced to sea-level, lay over the eastern part of the Alps. The wind, as shown by the chart, seemed to blow gently out from this centre, and at the same time to turn toward the right, indicating an anticyclonic motion. The charts also show that the region of high barometric pressure corresponded with that of low temperature, the latter, however, without any reduction to sea-level.

After reducing the pressure and temperature observations of twelve high-level stations of the Alps and adjacent territory, with altitudes ranging from 1400 to 3100 m., to the level of 2500 m. of altitude, the centre of high pressure is found to correspond, at that level, with that at the earth's surface, and the temperatures, with little variation between stations, to be a little below that of incipient freezing.

The temperature on the earth's surface first sank under the influence of the high pressure below the normal. Before this, a temperature prevailed which was considerably above the normal, which first sank to the mean on the 11th and 12th, as the centre of high pressure was first transferred to Central Europe.

The dryness of the air at the mountain stations in the centre of the region of high pressure was extraordinary during the whole time from the 12th to the beginning of the stormy west winds on the 25th, and the daily mean of the relative humidity from the 19th to the 23rd ranged from 17 per cent. on the Wendelstein (1730 m.) to 49 per cent. on the Schneeberg near Vienna (1460 m.), while on the low lands with lower temperatures the air was nearly or quite saturated with aqueous vapour. In the higher strata of the air, therefore, during the high pressure, and especially during the latter part of it, there was very great dryness, while near the earth's surface the reverse was the case.

By comparing the observations of the lower stations above 500 m. and over, from the 19th to the 23rd, with the higher ones, it was found that through a range of 2050 m. there was an increase of 0°·8 in the daily mean; but for the lower intervals of altitude, the increase of temperature with altitude, for an average range of 680 m., was 7°·1. This indicates that the air was very cold near the earth's surface only, and that in ascending it rapidly became abnormally warm, and remained so up to the level of the upper stations, and, we have reason to think, much higher. This warm and dry air came not from the south, since, at a few high stations, as Sonnblick, Schneeberg in Tyrol, and Obir, the prevailing winds were northerly. It was a real *foehn*, with its characteristics of great warmth and dryness, arising from the gradual descent of air in the interior of the high-pressure area.

The departures of barometric pressure from the normal

<sup>1</sup> “Denkschriften der mathematisch-naturwissenschaftlichen Classe der kaiserlichen Akademie der Wissenschaften,” Band lvii.