

to use or not to use for transcriptions of vowels the Czech *j*, referred to in the table under (1)-(5).

а	б	в	г	д	e <sup>2</sup>	ё <sup>5</sup>	ж	з	и <sup>3</sup>	й			
а	б	в	г	д	e, je	ě	ž	z	i, ji	й			
к	л	м	н	о	п	р	с	т	у	ф	х	ц	ч
к	л	м	н	о	р	с	т	у	ф	х	ц	ч	
ш	щ	ъ	ы	ь <sup>4</sup>	ѣ <sup>2</sup>	э	ю <sup>1</sup>	я <sup>1</sup>	о	в			
š	šč	—	y	ī	ě, jě	e	ju, iu	ja, ia	f	i			

For brevity's sake I do not translate the single notes.

I lived long enough in England to love the nation and appreciate its wonderful conservatism, and I quite understand that English geographers will scarcely give up the transcription once introduced by Lord Gleichen (of which I also possess a copy); yet a glance at the special Ordnance maps of countries of Central Europe, for example the excellent maps (1:75,000 or 1:25,000) of the late Austrian Empire, might convince everybody that the diacritic signs of half-a-dozen different languages are not a drawback in producing or using such maps even for military purposes.

Thus the nations outside Great Britain will have to choose between the mode of transcription defended by Lord Gleichen or the rules given by the Russian Academy of Sciences, which—up to this date having been unknown to me—happen to coincide with my proposal.

BOHUSLAV BRAUNER.

Bohemian University, Prague—VI.

February 1.

### Herapath's Artificial Tourmalines.

I SEE that Prof. F. J. Cheshire (NATURE, February 3, p. 171), in his presidential address to the Royal Microscopical Society, urges "that the work of Herapath and others in the production of artificial tourmalines should be again taken up," and I wish strongly to support this hope. In my report in the War Office "Observations on Malaria" (1919) I showed that the Herapath test for quinine, especially as modified by Prof. W. Ramsden, is the most delicate test known for this alkaloid, and I feel certain that Herapath's method lends itself to many other applications. I have never found it to fail in the case of quinine, which I was able to detect even in dilutions of 1 in 15,000,000.

M. NIERENSTEIN.

University of Bristol,

February 6.

### The Mechanism of Audition.

IN connexion with the recent discussion in NATURE of the mechanism of the cochlea, and of the model of the cochlea designed by Mr. George Wilkinson (October 21, p. 559; November 11, p. 632), it seems well to point out another characteristic of hearing which will have to be taken into account in any comprehensive theory of audition. This is the abruptness of the changes which are found in the sensitivity of many ears when tested as a function of frequency. These are disclosed by the accurate determinations of the sensitivity-frequency characteristics of ears which have been made possible by the use of continuous ranges of pitch for acuity tests instead of the method of tests at discrete frequencies which has usually been used. A description of the apparatus used is given in an article soon to appear in the *Physical Review*. In some cases with apparently

normal hearing people, changes as great as a factor of one thousand in the necessary intensity for audition are found with a change of pitch of a semitone, these occurring in connexion with depressions in the general level of sensitivity. Pictorially, this would seem to require the physical existence of a large number of elements each of which is concerned with the transmission of only a very narrow range of frequencies, these differentiated elements existing in the inner ear, in a possible cable from the ear to the brain, in the brain itself, or possibly in all three places, and of such a nature that the individual elements may be quite severely injured without seriously affecting neighbouring elements.

FREDERICK W. KRANZ.

Riverbank Laboratories, Geneva, Illinois.

### *Spiranthes autumnalis*.

IN NATURE of February 10, p. 185, Prof. Bower describes the finding of the orchid *Spiranthes autumnalis* near Carrbridge in the summer of 1921. I have to report the discovery of a single specimen of this orchid in the first week of September 1922, on Docharn Craig, a small hill (1250 ft.) four miles south-east of Carrbridge. The hill is under cultivation up to 1100 ft. on the southern side, but on the northern side there are the remains of a wood of magnificent wind-sown pines. The floor of the wood is covered with *Vaccinium* spp. (mainly *oxycoccus*), mixed in places with *Erica Tetralix* and *E. cinerea*: earlier in the season *Pyrola rotundifolia* and *Trientalis europea* were abundant. Only one plant of *Spiranthes autumnalis* was found, although the interest attaching to its unexpected discovery in this locality led to a careful search of the whole wood. The specimen was unfortunately lost in the transit to town, but when fresh it was quite unmistakable.

E. PHILIP SMITH.

46 Murrayfield Avenue,  
Edinburgh, February 11.

PROF. BOWER's letter in NATURE of February 10, recording the finding of *Spiranthes autumnalis* near Carrbridge, Inverness-shire, prompts me to record the presence of that orchid in the Island of Coll, Argyllshire.

Whilst surveying there in August 1921 my wife and I noted some half-dozen specimens. These, though undoubtedly of the genus *Spiranthes*, did not tally exactly with the description of *S. autumnalis* as given in Hooker's Flora, but the difference was not sufficient to make them a variety.

Unfortunately we have not preserved a specimen, but we were so surprised at the time at finding that species in Coll that we sent one specimen to a competent field botanist who confirmed our identification.

JOHN B. SIMPSON.

H.M. Geological Survey Office,  
33 George Square, Edinburgh.

### The Drayson Paradox.

THE writer of the first paragraph in the astronomical column of NATURE of January 20, page 94, refers to my pamphlet (Wm. Pollard and Co., Exeter, 1s. 6d.) in a way which might lead an incautious reader to suppose he had seen it, which evidently he has not, or he would scarcely speak of "wresting a few isolated observations to suit their preconceived views" in face of the statement on its nineteenth page that