others, who have considerably modified Bell's system, are practically ignored. Sweet ought to have received careful attention; and Sievers surely deserved more than a curt footnote saying that the first edition of his book on phonetics had treated better than the second a certain class of vowels. The vowels meant have not yet been fully observed, but the Russian *jery* is one of them. Observations made several years ago in Leipzig, and renewed very recently in Boston by the writer of this notice, on the sound in question as pronounced by native Russians, are decidedly opposed to the theory accepted by Techmer; and Techmer's own hardly seem to favor it. That theory assumes that the sound is produced by *u*-position of the tongue, and *i*-position of the lips, while the English system makes it a vowel formed with the tongue in the 'mixed' position. In the present state of vowel-analysis, a correct account of this sound is of great importance, and vowels of the same class form one of the most marked features of the English scheme. Now, Techmer himself says he has only been able to observe a special form (*spielart*) of this class of vowels; namely, the Russian sound : and this he marks as formed with partially passive lips, like English vowels, and (sometimes only?) with an approach toward *mittlere zungenartikulation*. This comes very near the English description of the sound. The whole of Techmer's article is less clear and less interesting than Sievers's work, and makes the impression of resting more on theory than on unprejudiced observation of actual speech. To put, for example, *a* in the centre of the vowel-scheme must seem to many phoneticians a fundamental error. Still, the article contains much that is valuable, and is not to be neglected.

The second article, that on the graphic representation of speech-sounds, is open to objection for the same reasons. The account of English *e* in *err*, and *u* in *but*, certainly needed justification. They are represented as somewhat incomplete varieties of a sound to be classed with German *ö* and *ü*, — a statement which can only be accepted by one who agrees with Techmer as to the place of *a*, if, indeed, by any one. Also the English and American *r* sound ought to have been carefully distinguished from the rolled or trilled *r*'s, as Sievers has done.

If the journal lives, it will certainly contain much valuable matter. It is only to be feared that its rivalry will injure others already established, such as Kuhn's *Zeitschrift*.

INTELLIGENCE FROM AMERICAN SCIENTIFIC STATIONS.

GOVERNMENT ORGANIZATIONS.

Geological survey.

Division of the Pacific. — This division includes those parts of California, Oregon, and Washington Territory the drainage of which flows to the Pacific Ocean. An exception is the Lewis Fork of the Columbia River, which rises within the limits of the Great Basin.

The work undertaken in this division is divided into two classes; viz., the investigation of the mining-industries, and the study of the volcanic rocks. As preliminary to the latter, topographic work has been carried on for two seasons in northern California. Some of the details of this work, in the vicinity of Mount Shasta, have already been published.

Examination of quicksilver deposits. — Mr. George F. Becker and his assistants have been engaged in an examination of the quicksilver deposits of California. During the season of 1883 Mr. Becker's personal attention has been devoted to investigations in the vicinity of Sulphur Bank. In August a trip was made to the North Fork of Cache Creek and to Lower Lake, the only localities in that section where fossiliferous strata occur. The latter part of August and early part of September were spent in this section in order to complete the map of the Clear-Lake region of California. Returning to Sulphur Bank, soundings of the lake were taken, and the final examinations of the mines made, after which the party returned to San Francisco to prepare for the winter's office-work.

In the New Idria district, topographic work in connection with Mr. Becker's work was carried on throughout the whole season by Mr. Hoffmann. The survey was made with the utmost care, and in great detail. Contour lines, eighty feet apart vertically, were run; and intermediate forty-foot contours were interpolated by means of slope-measurements in the steeper parts, and by running curves in the more level portions. The entire area surveyed includes twelve square miles, and the field-work for the map was completed early in 1884.

Geologic work. — Mr. Turner, under the direction of Mr. Becker, undertook an examination of the region in the vicinity of Knoxville, after a trip from Clear Lake to the latter point, during which, notes on the general geology of the line of travel were taken. His work was interfered with by sickness, which obliged him to enter the hospital at San Francisco for treatment. Later in the season, however, he returned to the field, and throughout January, 1884, was busy mapping the formations in the region about Knoxville.

Laboratory work. — Dr. Mellville, in the laboratory at San Francisco, has been busy with analyses of the minerals, rocks, and waters collected at Sulphur Bank, and with other analytic work in connection with the examinations of the quicksilver deposits. He and Mr. Becker have been investigating some of the chemical relations of quicksilver.

Study of the volcanic rocks. — Capt. C. E. Dutton has been placed in charge of the investigation and study of the volcanic rocks in this division, with Mr. J. S. Diller as assistant. Capt. Dutton, during most of the past season, was busy in the preparation of his memoir on the Hawaiian volcanoes, which will be completed in time for publication in the fourth annual report of the director. Owing to the as yet incomplete state of the topographic work (which is progressing satisfactorily under the charge of Mr. Gilbert Thompson) in northern California, the field geologic work has been confined mainly to preliminary reconnoissance work, which has been carried on by Mr. J. S. Diller. Mr. Diller and his assistants took the field at Red Bluff, Cal., early in July, and immediately began work in that vicinity. The plain east of Red Bluff is a volcanic conglomerate of andesitic basaltic fragments of tufa. This formation is apparently of great extent, and reaches to the eastward for twenty-five miles. Late in July the party left Red Bluff, after having made a trip of six days' duration to Lassen's Peak, and proceeded *viâ* Redding to Yreka. From this point the ascent of Mount Shasta was made, after which they went to Linkville, Ore., taking the valley of the Klamath River to cross the main platform of the Cascade Range. Mr. Diller spent some time in the region of Mount Scott and Crater Lake, the geological features of which he found especially interesting. A brief but careful examination was made of the valley which the Klamath River cuts across the Cascade Range, in order to ascertain the geologic structure of that mountain platform. Interesting studies were also made of the faults and dislocations on the eastern side of the range, near Klamath Lake. The work thus detailed kept the party busy during August; and during September the reconnoissance along the eastern side of the range was continued. Union Peak, Mount Thielson, Crescent and Summit lakes, and Diamond Peak were all visited. From the latter Mr. Diller proceeded to the group of volcanic cones known as the Three Sisters, where both Mr. Diller and his assistant, Mr. Hayden, met with the accident already noted, which obliged them to suspend work temporarily. Later on, however, the work was continued to the northward. An account of the return trip to Red Bluff, *viâ* the western side of the Cascade Range, has been already given in *Science*. The entire trip occupied a hundred and eleven days, and the distance travelled was twenty-five hundred miles. The work done will be of great service in the determination of many of the problems connected with the range, and will form an excellent basis for future field-work. Mr. Diller is of the opinion that a special study of Lassen's Peak, if made before the detailed examination of the Cascade Range is begun, will be of great service. He says, no other ancient volcano in the United States is known that has erupted such a variety of lavas, or placed them in so favorable a position for study of their succession, as has Lassen's Peak. The solfataric phenomena at 'Bumpass' Hill,' and other places in the vicinity of Lassen, are much more extensive than at any other point in the Cascade Range. The region is also readily accessible. To the northward and southward, there are good exposures of the rocks which form the foundation of the Cascade Range, whereas north of Mount Shasta the exposures of these rocks are limited.

RECENT PROCEEDINGS OF SCIENTIFIC SOCIETIES.

Appalachian mountain-club, Boston.

March 12. — The following resolution was adopted by the club: holding in high esteem the geographical labors of the late Professor Arnold Guyot, be it resolved, that the Appalachian mountain club is impressed with the loss it is now called to sustain in the death of an honored and illustrious member, and that the club receives with gratitude that rich store of knowledge his researches have disclosed to those who seek the truths of nature among the Appalachian Mountains. —— A paper on mountain adventures by Mr. Alessandro di Placido, including a winter ascent of Fujiyama, Japan, and one by Dr. S. Kneeland on a visit to the crater of Vesuvius at night, in April, 1882, were read. —— Mr. C. H. Ames described the mountains around the Ktaadn iron-works in Maine. This group consists of thirty-one peaks, ranging in height from fifteen hundred to four thousand feet, the highest being White Cap. Mr. Ames exhibited a beaver-skin, moose-antlers, and a reindeer-head. —— Mr. W. M. Davis, representing the U. S. geological survey, explained the proposition which the survey has made to this state for the production of a map, and the following resolution was passed: resolved, that the Appalachian mountain club, in view of the great insufficiency of the existing maps of Massachusetts, recognizes, in the proposal recently made to the legislature by the U. S. geological survey, an opportunity to obtain a topographical map of the state which should not be lost, unless the legislature is prepared to inaugurate a more thorough and expensive plan.

Linnaean society, New York.

March 7. — The following officers were elected for the ensuing year: president, E. P. Bicknell; vice-president, Dr. A. K. Fisher; recording secretary, L. S. Foster; corresponding secretary and treasurer, N. T. Lawrence. —— Mr. E. P. Bicknell read the con-