

and the subject is sufficiently clothed and fed, he will probably be able to accomplish a very much larger amount of mental work, without being over-strained, than would be the case if these conditions were neglected.

In Germany, the question of dealing with over brain work is probably more pressing than it is in this country, because the brain is often over-exercised, while there is an insufficiency of physical exercise. In England, I am afraid, it is more often a question of physical fatigue than one of mental strain with which we are faced. But of course, when the teaching system is "unintelligent"—that is, one of *cram*—the poor brain must get terribly wearied.

Mr. Sadler has compiled the report with great care, and the portions which he has himself written are marked by a refreshing breadth of view not always to be found in Government reports. It is probable, however, that the object would be better attained if these reports were more condensed.

F. MOLLWO PERKIN.

TIDAL CURRENTS IN THE GULF OF ST. LAWRENCE.

FOR many years past, the Canadian Government has been prosecuting an accurate survey of the complicated tides and tidal currents of the Gulf of St. Lawrence. The Tidal Department, under the able directorship of Mr. W. Bell Dawson, has already done much excellent work in this field, although, doubtless, much yet remains to be discovered. In the tidal report for the present year, Mr. Dawson will describe the results of a careful analysis of the remarkable tidal currents which are met with in Northumberland Strait south of Prince Edward's Island. At most places, the times of the changes of tidal currents bear a more or less constant relationship to the times of high and low water, but in this channel the changes are found to be largely governed by the moon's declination. As Mr. Dawson remarks:—"This is very confusing to the mariner, as the turn of the current in relation to the tide is out of accord with the moon's phases, and has thus no fixed relation to the spring and neap tides. The greatest apparent irregularity is when the moon's declination is at its maximum; and this occurs sometimes at the spring tides and sometimes at the neaps. The ordinary navigator takes refuge in the conclusion that the currents are chiefly influenced by the wind."

Diurnal tides are ruled by the declination of the moon, and it would seem that there must be at this place a large diurnal inequality which manifests itself more by current than by variations of height.

Those who are interested in this subject will do well to refer to Mr. Dawson's forthcoming report.

G. H. D.

JOHANNES WISLICENUS.

THE generation that laid the foundation of organic chemistry has almost become a thing of the past, and at the close of last year one of the few remaining links was broken by the death of Wislicenus.

Not long since, the University of Leipzig was mourning the loss, at a venerable age, of a distinguished physicist; to-day the chair which was made famous by that "wahre Bearbeiter" Kolbe is vacant, and a name which will ever be illustrious in the history of spacial chemistry has been added to the classical traditions of this great seat of learning.

The news has come not as a sudden shock, for of late years the health of the venerable Geheimrath has been visibly declining, and waning strength and feeble gait warned his many friends that his working days would soon be over; none the less poignant, however, is the

grief felt by all who have had the privilege of sharing his friendship or coming under the influence of his impressive and genial personality.

Johannes Wislicenus was born on June 24, 1835, at Klein-Eichstedt, in the Prussian province of Saxony; when he was five years old, his father, a pastor, was transferred to Halle a. Salle, and there the boy received his first impressions of school life. At the "Frankesche Stiftung," a school which has since become celebrated, he remained until the age of eighteen, and at Easter, 1853, having passed his Maturitätsexamen, he entered the University of Halle with the intention of devoting himself to the study of natural science. His project was, however, soon frustrated. The political horizon was still clouded over, and in consequence of certain intrigues, his father, in the autumn of the same year, was compelled to fly the country; he found a home for himself and his family, as did so many refugees of that time, in the United States. In the following year, Johannes was appointed assistant to Prof. Horsford at Harvard University, Mass., and in 1855 became lecturer at the Mechanics' Institute, New York, with a laboratory at his disposal.

It was thus that he acquired that command of English which was such a source of wonder to his foreign students in later years.

In 1856, he was able to return to Europe, and resumed his interrupted studies at the University of Zurich, where he "promovierte" in 1860 and was appointed Privat-docent at the Polytechnic.

In 1861, he became professor of chemistry and mineralogy at the "Kantonale Industrieschule." Four years later, he received the honour of a chair at the University of Zurich, and in 1871 was elected by the "Bundesrath" as director of the Polytechnic in that town. In the following year, he was chosen to succeed Ad. Strecker at Würzburg. There he remained until 1885, and it was during this time that he carried on his classical researches on the constitution of acetoacetic ether and so established his reputation on a firm basis.

The year 1884 witnessed the death of Kolbe and the call of Wislicenus to Leipzig, where he remained until the end. As was pointed out by a writer recently in this Journal, "there is a curious irony in the thought that his first work there should have been directed towards the extension of the theory of Van't Hoff, whom Kolbe had regarded with such contempt."

Of his scientific work, space will only permit the barest outline. His researches were confined almost exclusively to the domain of organic chemistry, most of them appearing in *Liebig's Annalen der Chemie*. The constitution of lactic acid, on which he worked from 1863 to 1872, establishing the identity of structure for the two different substances fermentation- and para-lactic acids, first brought him into prominence among chemical workers and impelled him to seek an explanation of the metamorphism in the spacial relations of the atoms within the molecule. His interest in acetoacetic ether, to which reference has already been made, resulted in a detailed investigation of its reactions and of its value as a synthetic agent; these have gone far to stimulate the study of this most interesting compound, and are of importance, if for no other reason, for the light they throw on the still open question of its constitution.

It was in Leipzig, however, that he achieved his great work. In 1887 appeared his famous memoir, "Über die räumliche Anordnung der Atome in organischen Moleküllen," to account for the phenomena of "geometrical isomerism." According to his hypothesis, which was an extension of that formulated independently by Le Bel and Van't Hoff in 1874, "the centre of gravity of a carbon atom was regarded as situated in the centre of a tetrahedron, and its four affinities at the four corners." When two atoms were linked together, Van't Hoff, and