tity of the process of constructing theories in the realms of natural science and of developing mathematics by the postulational method will undoubtedly be of great value to the former in showing what is really essential, and to the latter in inspiring almost endless points of view.

It is not necessary to cite more examples to show that mathematics owes much to astronomy, especially in the field of analysis. If it were proper to strike a balance it could probably be shown that the debt has been more than repaid, but in these unselfish sciences the privileges of foreign service are cherished as much as the treasures of domestic achievements, and therefore we content ourselves with the recognition of the interrelations.

In closing I may point out the truism that these interrelations are not limited to astronomy and mathematics. It is to the glory of astronomy that in it were initiated the two most fundamental intellectual movements in the history of mankind, viz., the establishment of the possibility of science and of the doctrine of evolution. Our intellectual ancestors in the valleys of the Euphrates and the Nile and on the hills of Greece looked up into the sky at night and saw order there and not chaos. By painstaking observations and calculations they discovered the relatively simple laws of the motions of the heavenly bodies, whose invariable and exact fufilment led to the belief that the whole universe in all its parts is orderly and that science is possible. In the modern world this conclusion is so commonplace that its immense value is apt to be overlooked, but a study of the superstitions and the hopeless stagnation of those portions of mankind which have not yet made the discovery gives us some measure of its worth. The modern supplement to the conception that the universe is not a chaos is that not only is it an orderly universe at any instant, but that it changes from one state to another in a continuous and orderly fashion. This doctrine that science is extensive in time, as well as in space, is the fundamental element in the theory of evolution and the completion of the conception of science itself. The ideas of evolution in a scientific form were first applied to the relatively simple celestial phenomena. More than a century before the appearance of Darwin's "Origin of Species," and the philosophical writings of Spencer, another Englishman, Thomas Wright, published a book on the origin of worlds. Laplace's nebular hypothesis gave the geologists a basis for their work, which in turn paved the way for that of Darwin. For half a century now the doctrine of evolution has been a fundamental factor in the elaboration of all scientific theories, and its influence has spread to every field of intellectual effort. It has been the good fortune of mankind that his skies have sometimes been free of clouds and that he has been able to observe those relatively simple yet majestic and impersonal celestial phenomena which have not only led to so important results as the founding of science and the doctrine of evolution, but have strongly colored his poetry, philosophy and religion, and have stimulated him to the elaboration of some of his most profound mathematical theories.

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STATISTICS OF GERMAN UNIVERSITIES

The twenty-one German universities show an enrollment for the winter semester of 1910–11 of 54,822 students, as against 52,407 students last winter. During the past five years there has been an increase in registration of no less than 12,432 students. Curiously enough, the winter enrollment exhibits a decrease, although only of a few students, against the previous summer semester, in which

54,845 students were enrolled. The number of women students has grown from 211 five years ago to 2,418 this winter. There has been an increase in the number of students of medicine, philology and history, pure science, and Protestant theology, and a small gain in the number of students of Catholic theology, while there has been a decrease in the number of law students and in the students of dentistry and pharmacy. By faculties and groups the students were distributed as follows: Protestant theology, 2,535 (as against 2,320 in the winter semester of 1909–10); Catholic theology, 1,760 (1,698); law, 10,890 (11,317); medicine, 11,240 (10,135); dentistry, 1,146 (1,395); philosophy, philology and history, 15,525 (14,593); pure science, 7,914 (7,349); pharmacy, 954 (1,279); agriculture, 2,546 (2,085); forestry, 171 (129); veterinary medicine, 141 (107).

So far as the individual universities are concerned, those of Prussia show a larger increase than those of Bavaria and Baden, the ten Prussian universities having enrolled 28,675 students as against 27,244 last year, whereas the three Bavarian universities show an increase from 9,042 last winter to 9,342 this winter, and those of Baden from 4,101 students to 4,254 students; the remaining six German universities have increased their clientele from 11,980 to 12,552 students. The three largest universities (Berlin, München and Leipzig) alone enrolled no less than 39 per cent. of the total German student body, Berlin remaining at the top with an enrollment of 9,686 students, as against 9,242 last winter. This is followed by the University of München with 6,905 students (6,537 last year). The remaining universities range in the following order: Leipzig, 4,900 (4,761); Bonn, 3,846 (3,652); Halle, 2,661 (2,393); Breslau, 2,454 (2,405); Freiburg, 2,246 (2,167); Göttingen, 2,233 (2,230); Strassburg, 2,067 (1,995); Münster, 2,047 (1,906); Heidelberg, 2,008 (1,934); Marburg, 1,981 (1,878); Tübingen, 1,883 (1,760); Jena, 1,637 (1,496); Kiel, 1,439 (1,290); Würzburg, 1,425 (1,424); Königsberg, 1,380 (1,367); Giessen, 1,249 (1,261); Erlangen, 1,011 (1,121); Greifswald, 948 (881), and Rostock, 816 (707).

The figures show that all the universities with the exception of Erlangen, Würzburg and Giessen have increased their attendance, the smallest gains having been made by Göttingen, Königsberg and Breslau, the largest (in percentage) by Halle, Kiel, Jena, Tübingen and Rostock. Since last winter Breslau has been passed by Halle, Göttingen by Freiburg, Heidelberg by Münster, Würzburg and Königsberg by Kiel.

In addition to the 54,822 matriculated students, 3,528 men and 1,772 women are enrolled this winter as auditors, giving a total of 60,122 individuals receiving instruction at the German universities, the largest number in the history of German higher education.

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MEMORIAL TO CHARLES OTIS WHITMAN

VOLUME 22 of the *Journal of Morphology* will be a Charles Otis Whitman Memorial Volume. This volume was originally intended as a testimonial by former students and colleagues to the founder of the *Journal of Morphology,* Professor Charles Otis Whitman. In view of his untimely death it becomes a memorial volume. In addition to a large number of scientific papers by Professor Whitman's students and associates, illustrated with numerous plates and text figures, it will contain a biographical sketch with portraits of Professor Whitman. The edition of this volume will be sufficient to supply special orders in addition to the regular subscriptions to the *Journal of Morphology.* The contents will be as follows:

"The Sex Cells of *Amia* and *Lepidosteus*," B. M. Allen.

"Male Organs for Sperm-transfer in the Crayfish, *Cambarus affinis*, their Structure and Use," E. A. Andrews.

"Vertebrate Cephalogenesis." 3. "*Amphioxus* and *Bdellostoma*," Howard Ayers.

"On the Bilaterality of the Pigeon's Egg, a Study in Egg Organization," G. W. Bartelmez.

"The Regulatory Process in Organisms," C. M. Child.