does best who works as you do in medicine with the profoundest theoretical problems and the most intensely practical interests at once pressing upon him, with the widest and most philosophical breadth of view, and the most faithful special labor, at once demanding attention.

Josiah Royce

Harvard University

Some Tables of Student Hours of Instruction

In the days of President Dunster, the publications of Harvard University gave the curriculum leading to the first degree in arts in a single sentence thus: "The first year shall teach Rhetoric, second and third years Dialectics, and the fourth year shall add Philosophy." In no such simple form are the requirements for graduation set forth in a modern college catalogue. To determine exactly what studies must and what studies may be included in the college course calls in most cases for much study. To learn even approximately how many undergraduates, or what proportion of the undergraduates, are taking courses in any particular subject is in general impossible from the college catalogue. In some departments, many courses are offered, while few students elect; in other departments, few courses are offered and many students take them. At a few institutions the enrollment figures for all classes are now available in the published reports of the president or other officer, but in most cases one must call on the recording office to obtain such figures.

For the sake of the interest which the comparison of such statistics from many institutions may afford, the following tables have been prepared. They give the registration in the various subjects at eighteen more or less representative American colleges and universities. In the first table the numbers of "student hours of instruction" are given by subjects, while the second table gives the same facts in a form more suitable for comparison of the work of different institutions, since in it all the figures have been reduced to, and are expressed in, percentages. These statistics rest on a semester basis and include in general only undergraduates—candidates for the first degree; accordingly, special students and partial course students and all graduate students, so far as possible, have been omitted. Furthermore, in the cases of the universities, only the college of arts, or the college of letters and science, according as that school of the university is named, has ordinarily been included. Thus, the Columbia statistics refer only to Columbia College, the Yale statistics to Yale College, the Harvard statistics to Harvard College, the Wisconsin statistics to the college of letters and science, etc. It is only fair to state at once, however, that the great diversity in the grouping of the work of the universities in different schools makes the results here given unsatisfactory for comparison in the cases of the universities. One university appears to include all of its undergraduate work in engineering in the college of letters, while a second university includes only a little in that school, and a third none. Other differences of similar sort have been found in comparing the figures from the universities. No such difficulties arise with regard to the statistics of the colleges and it is believed that the tables are entitled to full credence for purposes of comparison so far as all the fourteen or fifteen smaller institutions included are concerned.

The figures have been submitted in most cases by the registrar for the purpose of this paper, but in a few instances they have been compiled from the printed report of the president, dean or registrar.

A "student hour of instruction," as that term is used here, means the taking of a course of one hour per week by one student through one semester. Thus, a class of twenty students taking a three-hours-per-week course in English for two semesters gives 120 student hours of instruction in English. The number of student hours of instruction in any course for any semester is obtained by multiplying the number of students in the course by the number of hours per week which that course counts towards graduation; ordinarily, in a

non-laboratory course, the latter factor is the same as the number of class-room hours per week given to the course; while in laboratory courses, and occasionally in non-laboratory courses, this factor is less than the number of hours given to the class-room exercises of the week. It is believed that this factor has always been used, in the work of these tables, in accordance with the established ruling of the institution concerned.

The subjects have been grouped in three divisions along the lines most generally accepted, if any association of subjects has gained sufficient adoption to entitle it to a claim of general acceptance. The first division includes the foreign languages, together with archeology, philology, comparative literature and "Greek art, etc." The third division includes mathematics and the sciences. The second division includes all other subjects, particularly English, history, philosophy and allied departments. It was found unfeasible to retain in all cases the departmental or subject names used by the various institutions. Consequently, such grouping of departmental titles as seemed feasible has been made. Thus philology is made to include "classical philology" and "comparative philology"; archeology includes "archeology and art"; Romance languages includes "French," "Italian" and "Spanish"; English includes "English composition," "English language" and "English literature"; public speaking includes "oratory" and "elocution"; government includes "modern government," or "politics" and "political science,"—which seems to be used at one institution as including government only and at another as including both economics and government; economics includes "sociology," "economics and sociology," "political economy" and "commercial organization"; philosophy includes "psychology"; Bible includes "Biblical history," "Biblical literature" and "Biblical history and literature"; art includes "the fine arts," "art and archeology" and "graphic art"; drawing includes the work in that subject which seems to be properly supplementary to the department of art, while "mechanical drawing" is included ordinarily under surveying and drawing or mathematics; music includes "musical history"; mathematics includes "applied mathematics" in the case of Leland Stanford Junior University; engineering includes "graphics," "graphics and engineering," "civil engineering," "electrical engineering" and "mechanical engineering"; chemistry includes "chemistry and mineralogy"; zoology includes "entomology and bionomics"; geology includes "geology and mining," "geology and mineralogy," "mineralogy" and "mineralogy and petrography"; physiology and hygiene includes "physiology," "hygiene" and "physiology and histology"; and physical education includes "physical training" and "physical training and personal hygiene,"—the gymnasium-work component of which subject is included in the figures reported from a few institutions, but is omitted by most of them. It is acknowledged that these groupings might be changed on fuller knowledge of the facts of the particular institutions, but the various combinations mentioned may perhaps be regarded suitable and sufficient for the present purpose.

It is to be noted that the Dartmouth figures do not take into account the courses taken by the undergraduates in the professional work of the medical, Thayer and Tuck schools. Similarly, the figures for Cornell include only such work as is taken by arts students, omitting that done by other students in other colleges in that university.

The statistics from the Johns Hopkins University refer to the year 1912–13, but are submitted for this report with the statement that it is believed they are not very unlike those of 1911–12; all the other information in the tables applies to 1911–12 only. The Smith College figures are based on only the first semester of the college year, but one reads in the report from which they are taken that they differ very little for the second semester; accordingly, the same figures are used for both semesters.

The Leland Stanford Junior totals do not include the work done in the medical depart-

TABLE I. *Student Hours of Instruction of College Undergraduates, Semester Basis* 1911–12

	Amherst	Bowdoin	Bryn Mawr	Columbia	Cornell	Dartmouth	Harvard	Johns Hopkins	Mount Holyoke	Oberlin	Princeton	Smith	Leland Stanford	Wellesley	Wesleyan	Williams	Wisconsin	Yale	Oxford Honors Choices
DIV. I. FOREIGN LANGUAGES																			
Semitics	.....	.....	.....	.....	188	.....	291	45	.....	.....	.....	.....	.....	.....	.....	.....	210	.....	Literae Humaniores, 147; Modern Languages, 11; Oriental Languages, 4.
Egyptology	.....	.....	.....	.....	.....	.....	174	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Sanskrit	.....	.....	.....	.....	.....	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Greek	423	321	151	522	424	351	612	129	331	447	1,701	202	571	288	154	675	340	1,470	
Greek Art, etc.	.....	.....	.....	.....	384	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Latin	1,110	543	1,370	1,966	710	1,029	1,158	192	1,635	857	4,076	1,532	1,160	1,047	417	1,429	1,766	2,686	
Philology	.....	.....	.....	.....	.....	.....	18	23	.....	.....	.....	.....	.....	12	.....	.....	.....	.....	
Archeology	.....	.....	96	.....	.....	339	99	24	84	447	.....	4	.....	108	.....	.....	.....	100	
Germanic Languages	1,002	900	404	2,760	2,242	3,057	4,467	470	1,447	2,450	1,971	1,930	2,863	3,329	944	1,906	10,762	2,554	
Romance Languages	1,725	825	706	3,054	2,416	4,437	5,307	427	1,395	1,534	3,429	2,242	2,782	2,760	1,214	2,014	8,384	3,366	
Slavic Languages	.....	.....	.....	.....	.....	.....	267	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Comparative Literature	.....	.....	66	.....	.....	18	1,935	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Totals	4,260	2,580	2,793	8,302	6,364	9,243	14,328	1,310	4,892	5,735	11,177	5,910	7,376	7,544	2,729	6,024	21,462	10,176	162
DIV. II. ENGLISH, HISTORY, ETC.																			
English	2,268	1,832	2,024	7,488	4,027	4,107	7,287	930	4,845	4,990	4,839	3,018	4,917	8,456	1,968	2,282	12,722	7,114	Modern History, 197; Jurisprudence, 111; Theology, 52; English Literature, 20.
Public Speaking	345	.....	216	.....	495	1,422	516	.....	.....	348	.....	683	.....	696	64	.....	510	.....	
History	681	1,113	1,082	4,622	2,066	2,793	4,467	381	1,495	1,764	.....	2,106	4,192	2,771	1,528	1,845	7,654	4,854	
History, Pol. and Econ.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8,040	.....	.....	.....	.....	.....	.....	.....	
Government	570	.....	455	1,818	4,028	864	4,161	.....	.....	538	.....	.....	.....	.....	.....	702	2,224	.....	
Economics	423	921	535	1,448	.....	3,666	7,719	432	951	1,769	.....	1,316	3,951	1,641	1,010	1,044	6,978	4,000	
Education	.....	.....	100	.....	575	.....	228	.....	703	507	.....	.....	1,790	1,074	.....	.....	.....	26	
Bibliography	.....	.....	.....	.....	44	.....	.....	.....	.....	30	.....	.....	.....	.....	.....	.....	.....	.....	
Philosophy	798	699	1,208	5,316	1,709	619	3,681	248	945	2,056	2,943	1,896	1,371	2,028	1,123	889	2,930	1,540	
Anthropology	.....	.....	.....	102	.....	.....	648	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	884	
Religion	.....	.....	.....	544	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	105	.....	.....	
Bible	513	.....	297	.....	.....	.....	.....	.....	1,467	1,572	27	820	.....	3,284	.....	.....	.....	82	
Social Ethics	.....	.....	.....	.....	.....	.....	249	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Art	.....	.....	.....	.....	.....	.....	1,266	.....	879	.....	558	1,036	869	878	.....	.....	.....	.....	
Drawing	.....	.....	.....	.....	.....	.....	.....	.....	.....	146	.....	.....	.....	.....	.....	.....	.....	.....	
Architecture	.....	.....	.....	.....	81	.....	438	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Landscape Architecture	.....	.....	.....	.....	.....	.....	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Music	215	.....	.....	592	194	93	903	.....	437	359	.....	893	.....	1,218	.....	.....	964	.....	
Art and Music	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	202	
Law	.....	.....	.....	.....	552	.....	.....	.....	.....	.....	.....	.....	2,770	.....	.....	.....	.....	1,798	
Totals	5,813	4,565	5,917	21,930	13,771	13,564	31,587	1,991	11,722	14,079	16,407	11,768	19,860	22,046	5,693	6,867	33,982	20,500	380
DIV. III. SCIENCES																			
Mathematics	1,452	351	216	3,644	2,021	2,788	3,090	473	1,740	1,943	5,038	1,514	4,050	4,126	705	1,921	7,316	1,566	Natural Science, 88; Mathematics, 25.
Surveying and Drawing	.....	66	.....	.....	.....	.....	.....	54	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Engineering	.....	.....	.....	.....	915	912	2,694	.....	.....	.....	3,379	.....	5,725	.....	.....	.....	.....	.....	
History of Science	.....	.....	.....	.....	.....	.....	120	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Astronomy	81	.....	.....	546	.....	144	552	.....	415	42	456	141	.....	378	.....	186	98	.....	
Physics	345	174	501	1,192	1,688	2,457	1,473	375	541	321	3,243	405	1,096	540	387	605	4,388	1,990	
Chemistry	774	516	205	2,736	4,090	1,804	3,648	372	1,122	1,674	2,209	685	2,644	753	1,016	1,071	8,930	1,730	
Biology	1,038	222	607	.....	.....	.....	.....	216	.....	.....	693	.....	.....	.....	1,624	526	3,260	1,072	
Botany	.....	.....	61	470	150	.....	537	.....	359	580	.....	546	587	2,414	.....	.....	.....	.....	
Zoology	.....	.....	.....	832	153	.....	618	.....	927	602	.....	617	1,176	1,488	.....	.....	.....	.....	
Zoology and Botany	.....	.....	.....	.....	.....	2,022	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Geology	150	117	285	600	834	315	789	183	222	456	1,356	116	2,213	816	.....	174	3,550	692	
Mining and Metallurgy	.....	.....	.....	.....	.....	.....	435	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Physiology and Hygiene	.....	114	35	120	.....	105	1,110	.....	255	555	.....	.....	1,180	890	.....	66	768	.....	
Physical Education	311	.....	.....	1,850	.....	.....	.....	.....	.....	706	.....	.....	1,103	.....	.....	.....	.....	.....	
Medicine	.....	.....	.....	.....	532	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Veterinary	.....	.....	.....	.....	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Agriculture	.....	.....	.....	.....	1,042	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Totals	4,151	1,560	1,910	11,990	11,443	10,547	15,066	1,673	5,581	6,879	16,374	4,024	19,774	11,403	3,732	4,549	28,310	7,050	113
Grand Totals	14,224	8,705	10,620	42,222	31,578	33,354	60,981	4,974	22,195	26,693	43,958	21,702	47,010	40,995	12,154	17,440	83,754	37,726	655

TABLE II. *Student Hours of Instruction of College Undergraduates Reduced to Percentages* 1911–12

Subject	Amherst	Bowdoin	Bryn Mawr	Columbia	Cornell	Dartmouth	Harvard	Johns Hopkins	Mount Holyoke	Oberlin	Princeton	Smith	Leland Stanford	Wellesley	Wesleyan	Williams	Wisconsin	Yale	Oxford Honors Choices	Average Percentages by Institutions, Oxford omitted
DIV. I. FOREIGN LANGUAGES																				
Semitics	.....	.....	.....	.....	.59	.....	.49	.91	.....	.....	.....	.....	.....	.....	.....	.....	.25	.....		
Egyptology	.....	.....	.....	.....	.....	.....	.29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Sanskrit	.....	.....	.....	.....	.....	.04	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Greek	2.98	3.58	1.42	1.24	1.34	1.05	1.00	2.59	1.49	1.68	3.89	.93	1.21	.70	1.26	3.88	.41	3.91		
Greek Art, etc.	.....	.....	.....	.....	1.22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Latin	7.80	6.23	12.89	4.66	2.25	3.08	1.89	3.86	7.38	3.21	9.26	7.06	2.47	2.55	3.43	8.20	2.11	7.14		
Philology	.....	.....	.....	.....	.....	.....	.03	.46	.....	.....	.....	.....	.....	.03	.....	.....	.....	.....		
Archeology	.....	.....	.91	.....	.....	1.02	.16	.48	.38	1.68	.....	.02	.....	.26	.....	.....	.....	.27		
Germanic Languages	7.04	10.35	3.80	6.54	7.10	9.18	7.33	9.45	6.53	9.18	4.49	8.89	6.09	8.12	7.77	10.92	12.85	6.78		
Romance Languages	12.10	9.48	6.65	7.24	7.66	13.28	8.70	8.58	6.28	5.75	7.81	10.34	5.92	6.73	9.99	11.54	10.02	8.84		
Slavic Languages	.....	.....	.....	.....	.....	.....	.44	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Comparative Literature	.....	.....	.62	.....	.....	.05	3.17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Literae Humaniores, 22.44; Modern Languages, 1.68; Oriental Languages, .61.	
Totals	29.92	29.64	26.29	19.68	20.16	27.70	23.50	26.33	22.06	21.50	25.45	27.24	15.69	18.39	22.45	34.54	25.64	26.94	24.73	24.50
DIV. II. ENGLISH, HISTORY, ETC.																				
English	15.94	21.05	19.06	17.74	12.75	12.33	11.95	18.70	21.84	18.69	11.01	13.91	10.46	20.63	16.20	13.08	15.20	18.87		
Public Speaking	2.43	.....	2.04	.....	1.57	4.27	.85	.....	.....	1.31	.....	3.15	.....	1.70	.53	.....	.61	.....		
History	4.79	12.78	10.18	10.95	6.54	8.39	7.32	7.66	6.74	6.61	.....	9.71	8.92	6.76	12.58	10.58	9.13	12.88		
History, Pol. and Econ.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18.25	.....	.....	.....	.....	.....	.....	.....		
Government	4.01	.....	4.28	4.31	12.75	2.59	6.82	.....	.....	2.02	.....	.....	.....	.....	.....	4.02	2.65	.....		
Economics	2.98	10.58	5.04	3.43	.....	10.98	12.65	8.68	4.28	6.63	.....	6.07	8.40	4.00	8.31	5.99	8.33	10.61		
Education	.....	.....	.94	.....	1.82	.....	.38	.....	3.16	1.90	.....	.....	3.81	2.62	.....	.....	.....	.07		
Bibliography	.....	.....	.....	.....	.14	.....	.....	.....	.....	.11	.....	.....	.....	.....	.....	.....	.....	.....		
Philosophy	5.61	8.04	11.37	12.59	5.41	1.85	6.03	4.99	4.26	7.70	6.70	8.74	2.92	4.95	9.24	5.10	3.49	4.08		
Anthropology	.....	.....	.....	.24	.....	.....	1.06	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.35		
Religion	.....	.....	.....	1.29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.60	.....	.....		
Bible	3.61	.....	2.80	.....	.....	.....	.....	.....	6.62	5.88	.06	3.78	.....	8.01	.....	.....	.....	.21		
Social Ethics	.....	.....	.....	.....	.....	.....	.41	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Art	.....	.....	.....	.....	.....	.....	2.09	.....	3.96	.....	1.27	4.77	1.85	2.14	.....	.....	.....	.....		
Drawing	.....	.....	.....	.....	.....	.....	.....	.....	.....	.55	.....	.....	.....	.....	.....	.....	.....	.....		
Architecture	.....	.....	.....	.....	.25	.....	.72	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Landscape Architecture	.....	.....	.....	.....	.....	.....	.04	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Music	1.51	.....	.....	1.39	.61	.28	1.45	.....	1.97	1.34	.....	4.10	.....	2.97	.....	.....	1.15	.....		
Art and Music	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.54		
Law	.....	.....	.....	.....	1.75	.....	.....	.....	.....	.....	.....	.....	5.89	.....	.....	.....	.....	4.77		
Totals	40.88	52.45	55.71	51.94	43.59	40.69	51.77	40.03	52.83	52.74	37.29	54.23	42.25	53.78	46.86	39.37	40.56	54.38	58.02	46.78
DIV. III. SCIENCES																				
Mathematics	10.21	4.03	2.04	8.63	6.41	8.36	5.06	9.51	7.85	7.28	11.46	6.98	8.62	10.07	5.81	11.01	8.73	4.15		
Surveying and Drawing	.....	.76	.....	.....	.....	.....	.....	1.09	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Engineering	.....	.....	.....	.....	2.90	2.74	4.42	.....	.....	.....	7.69	.....	12.18	.....	.....	.....	.....	.....		
History of Science	.....	.....	.....	.....	.....	.....	.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Astronomy	.57	.....	1.29	.....	.43	.91	.....	1.87	.16	1.04	.65	.....	.92	.....	1.07	.11	.....			
Physics	2.43	2.00	4.72	2.82	5.34	7.35	2.41	7.54	2.44	1.20	7.39	1.85	2.33	1.32	3.19	3.47	5.25	5.27		
Chemistry	5.44	5.93	1.93	6.48	12.95	5.41	5.98	7.48	5.05	6.27	5.01	3.16	5.62	1.84	8.33	6.14	10.67	4.59		
Biology	7.30	2.55	5.71	.....	.....	.....	.....	4.34	.....	.....	1.58	.....	.....	.....	13.36	3.02	3.89	2.84		
Botany	.....	.....	.58	1.11	.45	.....	.88	.....	1.62	2.17	.....	2.52	1.25	5.89	.....	.....	.....	.....		
Zoology	.....	.....	.....	1.97	.45	.....	1.01	.....	4.14	2.25	.....	2.84	2.50	3.63	.....	.....	.....	.....		
Zoology and Botany	.....	.....	.....	.....	.....	6.05	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Geology	1.06	1.34	2.69	1.42	2.64	.95	1.33	3.68	1.00	1.71	3.09	.53	4.71	1.99	.....	1.00	4.24	1.83		
Mining and Metallurgy	.....	.....	.....	.....	.....	.....	.72	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Physiology and Hygiene	.....	1.30	.33	.28	.....	.32	1.81	.....	1.14	2.08	.....	.....	2.51	2.17	.....	.38	.91	.....		
Physical Education	2.19	.....	.....	4.38	.....	.....	.....	.....	.....	2.64	.....	.....	2.34	.....	.....	.....	.....	.....		
Medicine	.....	.....	.....	.....	1.68	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Veterinary	.....	.....	.....	.....	.06	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Agriculture	.....	.....	.....	.....	3.31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Totals	29.20	17.91	18.00	28.38	36.25	31.61	24.73	33.64	25.11	25.76	37.26	18.53	42.06	27.83	30.69	26.09	33.80	18.68	17.25	28.72
Grand Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Modern History, 30.08; Jurisprudence, 16.95; Theology, 7.94; English Literature, 3.05.

Natural Science, 13.43; Mathematics, 3.82.

ment; and they contain results for both undergraduate and graduate students—contrary to the plan of using the figures for undergraduates only.

The statistics from the University of Wisconsin should be viewed in the light of the following statements from Dean Birge: "The college of letters and science teaches all the language, science and mathematics for the colleges of engineering and agriculture. This gives us a great many students in the elementary classes who take their advanced work in other colleges. This fact would make the advanced work relatively smaller than it would be if the college of letters and science alone were concerned. It increases the registration in modern languages, English, chemistry, physics and mathematics very considerably." The figures for the first semester are used, with permission, for both semesters in the case of Wisconsin.

The numbers of those who entered for the different final honors schools in 1912 at the University of Oxford have been included in the tables. Perhaps much more value would attach to statistics which should include the "pass" men also; but figures showing the lines along which the choices of the more earnest students at this great English university fall are regarded of at least sufficient interest to warrant their inclusion here.

In the order of the relative amount of work done in the foreign languages, the seventeen American institutions considered rank, according to this table, for the year in question thus: (1) Williams, (2) Amherst, (3) Bowdoin, (4) Dartmouth, (5) Smith, (6) Yale, (7) Johns Hopkins, (8) Bryn Mawr, (9) Wisconsin, (10) Princeton, (11) Harvard, (12) Wesleyan, (13) Mount Holyoke, (14) Oberlin, (15) Cornell, (16) Columbia, (17) Wellesley and (18) Leland Stanford Junior, with the Oxford honors men standing between Princeton and Harvard.

Similarly, the order as to the amount of work done in the subjects of the second division (English, history, philosophy, etc.) is as follows: (1) Bryn Mawr, (2) Yale, (3) Smith, (4) Wellesley, (5) Mount Holyoke, (6) Oberlin, (7) Bowdoin, (8) Columbia, (9) Harvard, and, with a long interval, (10) Wesleyan, (11) Cornell, (12) Leland Stanford Junior, (13) Amherst, (14) Dartmouth, (15) Wisconsin, (16) Johns Hopkins, (17) Williams and (18) Princeton, with the Oxford honors men preceding Bryn Mawr.

Again, the order for the division of science stands thus: (1) Leland Stanford Junior, (2) Princeton, (3) Cornell, (4) Wisconsin, (5) Johns Hopkins, (6) Dartmouth, (7) Wesleyan, (8) Amherst, (9) Columbia, (10) Wellesley, (11) Williams, (12) Oberlin, (13) Mount Holyoke, (14) Harvard, (15) Yale, (16) Smith, (17) Bryn Mawr, (18) Bowdoin, with the Oxford honors men last of all.

In general, the eastern institutions show a greater amount of work in the foreign languages than the western, while the western show much larger numbers in science. In the second division the line between the east and the west is not nearly so clear, while Yale and the colleges for women stand together at the head of the list. Amherst and Dartmouth stand much closer to each other in the distribution of their work along these three lines than do any other two of the group which includes them and Bowdoin, Wesleyan and Williams. Johns Hopkins and Wisconsin present results which are very similar; and so do Smith College and Yale College, while Bryn Mawr stands very close to both.

One hesitates to try to account for these differences of distribution of work in our colleges. Probably the presence or absence of required courses, the economic and social factors of the time and place, the influence of women in coeducational institutions, the countless personal equations and all those tendencies, accidental, traditional and historical, which enter in the making of a curriculum and the creation of the student sentiment towards it—all these and many more must be the reasons which together determine these things. Into these questions the statistician makes no attempt to enter. The tables are presented simply as shedding a bit

of light of some interest on the great subject of American collegiate education.

FREDERICK C. FERRY

SCIENTIFIC NOTES AND NEWS

THE statue of Lord Kelvin, erected in Kelvin Grove Park, Glasgow, was unveiled on October 8. Mr. Augustine Birrell, rector of Glasgow University, made the address, and at the luncheon which followed an address was made by Mr. Arthur Balfour. The statue, which is of bronze, is the work of A. McF. Shannan.

COLONEL GEO. W. GOETHALS, chairman of the Isthmian Canal Commission and chief engineer of the Panama Canal, has accepted the honorary presidency of the International Engineering Congress and will preside over the general session to be held in San Francisco, September 20–25, 1915.

PROFESSOR THEOBALD SMITH, of Harvard University, has accepted membership on an International Committee with Professor Gaffky, of Berlin, and Professor Calmette, of Lille, to award in 1914 the first Emil Chr. Hansen Prize for researches in medical microbiology.

THE Warren triennial prize for 1913, amounting to $500, has been awarded to Dr. Arrigo Visentini, instructor in pathologic anatomy in the Royal University, Pavia, Italy, for his essay entitled, "Function of the Pancreas and its Relation to the Pathogenesis of Diabetes."

AT its last meeting the Rumford Committee of the American Academy made the following appropriations: To Professor W. O. Sawtelle, of Haverford College, $300, in addition to a former appropriation, in aid of his research on "The spectra of light from the spark of an oscillatory discharge"; to Professor G. N. Lewis, of the University of California, $300, in addition to a former appropriation, in aid of his researches on the "Free energy changes in chemical reactions"; to Professor H. N. Davis, of Harvard University, $200, in aid of his various thermodynamical researches.

DR. CARL VOEGTLIN, associate professor of pharmacology in the Johns Hopkins University, has been appointed professor of pharmacology in the hygienic laboratory, U. S. Public Health Service, to succeed Professor Reid Hunt, now head of the department of pharmacology at Harvard University.

PRIVATDOZENT DR. CARL TIGERSTEDT, of the physiological institute of the University of Helsingfors, Finland, recently appointed as research associate of the Carnegie Institution of Washington, is spending the winter in the Nutrition Laboratory in Boston.

ALBERT W. WHITNEY has resigned his position of associate professor of insurance and mathematices in the University of California to become assistant actuary in the Insurance Department of the State of New York.

PROFESSOR GAFFKY, director of the Institute for Infectious Diseases, Berlin, retired from his position on October 1. His successor will probably be Professor Loeffler, of Greifswald.

PROFESSOR A. OBRECHT has been appointed director of the Santiago Observatory in succession to the late Dr. Ristenpart.

DR. ROGER CROISSANT, Paris, is visiting the United States, to study the system of training nurses with a view of organizing similar work in France.

DR. JOSEF SCHUMPETER, professor of political economy in the University of Graz, Austria, has been named as the Austrian exchange professor for the winter semester of 1913–14 at Columbia University. He is a graduate of the University of Vienna in 1906, and studied later in Berlin and England, in which latter country he remained until 1908. Dr. Schumpeter writes and speaks the English language perfectly.

DR. RHODA ERDMANN, of the department of protozoology of the Berlin Institute for Infectious Diseases, has been appointed Seesel research fellow in zoology at Yale University, to enable her to study Professor Woodruff's pedigreed race of *Paramœcium*.

DR. BURT G. WILDER, emeritus professor of neurology and vertebrate zoology in Cornell University, will reside hereafter in Brookline, Mass., the home of his boyhood. His address