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DISCUSSION AND CORRESPONDENCE

GRADUATE WORK IN AMERICAN UNIVERSITIES

THE university registration statistics published by Professor Tombo in *SCIENCE*, January 23, 1914, allow, among other things, an interesting and instructive comparison of the amount of graduate work being done in the thirty universities tabulated. The number of non-professional graduate students may be taken to represent the amount of research that is being done in a university, for, in general, a university will attract non-professional graduate students in proportion to the activity in the graduate departments. The relative amount of emphasis laid on graduate work in each university can be seen at a glance in the table below, where the thirty universities in question are arranged in rank according to the ratio of non-professional graduates to undergraduates, *i. e.*, the number of graduates to every hundred undergraduates. The first column gives the ratio of graduates to undergraduates based on the figures given under "College, Men," "College, Women" and "Non-professional Graduate Schools" in Professor Tombo's table.¹ The second column gives the total enrollment listed under these three heads, corresponding presumably with the enrollment of purely academic students.

| University | Ratio | Total Students |
|------------------------|-------|----------------|
| 1. Johns Hopkins | 123 | 397 |
| 2. Pennsylvania | 107 | 1,504 |
| 3. Columbia | 102 | 2,960 |
| 4. New York | 52 | 1,076 |
| 5. Illinois | 32 | 1,097 |
| 6. Chicago | 28 | 2,183 |
| 7. Cornell | 28 | 1,435 |
| 8. Cincinnati | 27 | 789 |
| 9. Yale | 24 | 1,736 |
| 10. Wisconsin | 18 | 1,894 |
| 11. Harvard | 17 | 3,403 |
| 12. California | 15 | 3,146 |
| 13. Washington | 15 | 438 |
| 14. Princeton | 14 | 1,443 |

¹ *SCIENCE*, p. 126.

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|---------------------------|----|-------|
| 15. Ohio State | 13 | 1,018 |
| 16. Nebraska | 13 | 1,443 |
| 17. Pittsburgh | 12 | 438 |
| 18. Iowa | 11 | 1,293 |
| 19. Virginia | 11 | 439 |
| 20. Michigan | 9 | 2,745 |
| 21. Missouri | 9 | 1,473 |
| 22. Minnesota | 8 | 1,648 |
| 23. Stanford | 8 | 1,877 |
| 24. Tulane | 8 | 345 |
| 25. Northwestern | 8 | 1,173 |
| 26. Indiana | 7 | 1,200 |
| 27. Kansas | 6 | 1,729 |
| 28. Syracuse | 6 | 1,415 |
| 29. Texas | 5 | 1,597 |
| 30. Western Reserve | 1 | 826 |

The ranking of the universities obviously does not correspond in every case with the amount of productive scholarship that is issuing from a university, but, as far as the enrollment figures are correct, it would seem to indicate the relative emphasis that is being put upon graduate work. A correlation of the totals as given in the second column with the ratios of the first column gives a coefficient of about .046, or practically no correlation at all. This might be interpreted to mean that the universities possessing enormous undergraduate departments do not as a rule show an increased activity in graduate work, such as the number of undergraduates should warrant, presuming, of course, that the ultimate ideal of a university is held to be productive scholarship.

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THE CAUSE OF THE PECULIAR SOUND MADE BY NIGHTHAWKS WHEN VOLPLANING

ALL are familiar with the resonant sound made by the nighthawk as he cavorts through the air. It may be described as a guttural "woof."

It has been a contested point as to whether this sound was produced by the open mouth or the wings. As it occurs at the point where the bird swerves upward in his downward glide and at no other time, it is very evident that the mouth plays no part, otherwise the sound would occur at other times.