relations which Cattell has pointed out may be artificially altered by a combination of the ordinary methods of collecting data with a differential sex incidence of the trait under investigation. Judges are prevailingly men rather than women, and it is only when adequate care is taken in the method of selecting those to be investigated that one may expect the data to show an equality in the number of their brothers and sisters. The point involved may be brought out by means of a simple paradigm. Let us imagine a population with numerical equality of the sexes, and a calling in which half the men but none of the women attain a certain distinction. The tabulation, in which B stands for brother, S for sister and ′ for distinction, shows the distributions for families of three. The first column indicates a random distribution in the whole population. The second column shows the families in which there is at least one member of distinction. This is the material which would be utilized if the investigator could obtain all the desired data. But it generally happens that only a selected portion of it is available and, when such is the case, families with two or three distinguished individuals are two or three times as likely to be located as those with only one. The third column shows the consequent probable distribution of family records if the data are collected in the usual way. The proportion of the sexes in the three groups is interesting. In the first column the sex ratio is 100 and each boy, distinguished or otherwise, has, on an average, as many brothers as sisters. In the second column the sex ratio is 164; boys as a group have an excess of brothers, but those of distinction have only as many brothers as sisters. In the third column, which probably most nearly represents the usual character of available data, the sex ratio is 200 and boys of distinction have 7 brothers to 5 sisters. The difference would be still greater if there were a hereditary factor also involved.

1 B′ B′ B′	1 B′ B′ B′	3 B′ B′ B′
3 B′ B′ B	3 B′ B′ B	6 B′ B′ B
3 B′ B B	3 B′ B B	3 B′ B B
1 B B B	———	———
6 B′ B′ S	6 B′ B′ S	12 B′ B′ S
12 B′ B S	12 B′ B S	12 B′ B S
6 B B S	———	———
12 B′ S S	12 B′ S S	12 B′ S S
12 B S S	———	———
8 S S S	———	———

Obviously, such an extreme case as this hypothetical one is not likely to be met, but similar cases of less degree do occur, as the writer can testify from his own experience. The purpose of this note is simply to call attention to the existence of certain factors which, when combined as they frequently are, may affect the important relation pointed out by Cattell and Rietz.

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ENERGY VALUES OF FEEDS FOR CATTLE

THE net energy conception of Armsby, having been unanimously indorsed by the American Society of Animal Production, may fairly be considered a promising basis for research in nutrition. In this connection a remarkable bit of confirmatory evidence will be of general interest.

The writer and others have reported a rather extensive series of experiments with cattle at the University of Missouri. These included live weight maintenance trials and slaughter experiments. In reviewing this work in a forthcoming monograph of the American Chemical Society the writer has calculated the maintenance costs of the 27 beef cattle used from the feed consumption in the feed lot and energy values obtained in some of Dr. Armsby's calorimeter experiments. In some of these experiments a few of the Missouri cattle were fed the Missouri ration and the metabolizable and net energy in the ration were determined. Using these figures, the average maintenance cost of the 27 cattle is shown to be 6.09 therms of net energy per 1,000 pounds per day. From calorimeter experiments Armsby had derived a value of 6 therms. Such an agreement in maintenance costs, in spite of widely varying quantities of feed and relative activity of the animals, supports the validity of the net energy conception.

The writer has previously reported results with two beef steers showing that the percentage of the metabolizable energy consumed above maintenance which was recovered in the flesh and other body substance gained by beef cattle was practically identical with the percentage of net energy in the feeds. One steer showed a recovery of 53.4 per cent. of the metabolizable energy above maintenance while another recovered 52.5 per cent. According to the method of Armsby this ration contained metabolizable energy which was 55 per cent. available or net.

Taken together these two pieces of evidence are a striking confirmation of the net energy conception.

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THE TEACHING OF EVOLUTION

IN the New York *Times* of October 20, there is published a deliverance from Mr. Julian Huxley, of Oxford, in which he appears to me to have indulged in the light occupation of jumping to conclusions in a manner not characteristic of his illustrious grandfather, and to have made some rather sweeping state-

ments on the basis of an inadequate observation of facts. Speaking of American educational institutions, he says:

> In the state universities I found the professors ready to give their opinions freely on evolution, but in theological schools many of them were afraid to speak except with extreme caution.
>
> The United States is the only country in the world where the attempt is being made to split up science into sects. Apparently there is Methodist biology, Baptist biology, Catholic biology—a biology for every denomination. If a professor in a Methodist college teaches Baptist biology or just plain biology, he is dismissed.

These statements impress me as being very inaccurate and misleading. There is no doubt that in a very considerable proportion of the theological seminaries of this country the doctrine of evolution is held and taught as one of the great basic laws of the universe. There is a large number of "denominational colleges" in the country, including such institutions as Amherst, Bowdoin, Dartmouth, Wesleyan, Oberlin, De Pauw, Beloit, Knox, Lawrence, Grinnell, Carleton and Pomona, where the doctrine of evolution is taught in just as scientific a manner and with as great freedom as it is in the state universities.

It is true that there is a scientific biology and a "Bryanese biology," between which there is a struggle at the present time. But this is not a denominational conflict. There are colleges in the country in which the teaching of scientific biology is not permitted. But they can not be considered as representative American colleges, and they are not restricted to any one or two or three denominations.

As a matter of fact, it seems that the attack of Mr. Bryan, Mr. Norris and other leaders in the Fundamentalist movement, is directed more against the state universities than against the denominational colleges, and it is an open question whether the biologists in standard representative colleges do not have greater academic freedom than is enjoyed in a number of our state universities. The Fundamentalists have launched a well-organzed campaign to prohibit by law the teaching of scientific biology in state universities and other tax-supported institutions. This campaign is being prosecuted with greatest vigor in the southern and southwestern states and there is a strong propaganda of the same sort in several midwestern states. When the Ku Klux Klan shall have accomplished their present objectives of disfranchising the Catholics, suppressing the Jews and Negroes and restoring the Bible to the public schools, they may logically be expected to "come over into Macedonia" and aid the Fundamentalists in their fight on scientific biology.

While biologists are not divided as to the fact of evolution, there are two or perhaps three schools of thought among them in regard to the definition of life, *viz.*, the mechanists, the vitalists, and the ignoramuses, sometimes called "agnostics." But here again the line of cleavage is not between the denominational colleges and the universities. There is a considerable number of eminent biologists, connected with some of our most distinguished universities, who do not find in physics and chemistry an adequate explanation of life—that "unknown god whom we ignorantly worship."

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PERAMBULATING MILLIPEDS

I WAS inclined to doubt the identification of the myriapods referred to in "A note on migration of myriapodia," which appeared in SCIENCE, July 25, 1924, but O. F. Cook's note on the "Swarming of desert millipeds" (SCIENCE, September 26, 1924), clarifies the matter to my satisfaction.

My own observations on Louisiana myriapods may be of some interest in this connection. Centipedes, of course, of which we have several genera and species in Louisiana, are predaceous nocturnal creatures, and being cannibalistic when occasion permits are not inclined to gregarious habits. I have never seen them abroad in the daytime except when their haunts are disturbed, when they scurry individually to places of safety.

This is not so in the case of our millipeds, which may be seen abroad both day and night on suitable occasions, although all species seem to shun direct sunlight, and may remain hidden both day and night during hot, dry weather. Those individuals or species living in well-shaded woodlands can be most constantly encountered during the daytime. Day or night, however, all Louisiana species exhibit perambulatory habits after a rain and to a lesser extent during foggy weather.

The most conspicuous swarming I have observed in this state was in the case of *Actobolus* (*Spirobolus*) *marginatus*, a notably gregarious species normally inhabiting damp woods, where it feeds largely on decaying wood. About twenty years ago a section of cut-over cypress swampland lying between New Orleans and Lake Ponchartrain was reclaimed in order to develop the suburb now known as Lakeview. This milliped became abnormally abundant in that section about fifteen years ago and remained so for several years because of the decaying of the cypress stumps upon exposure to the weather after drainage. Every damp night during the late summer and after every rain, they could be seen crossing the roads in count-