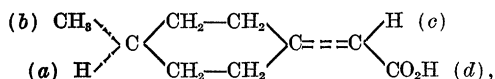


molecule of an asymmetric atom—of carbon, nitrogen, sulphur, selenium, tin or silicon. In this form the statement is quite incorrect. As was shown by van't Hoff and Le Bel years ago, the optical activity originates in the enantiomorphous configuration of the molecule, which is conveniently recognized by the identification of a particular atom in the molecule as being asymmetric.

Experimental confirmation of van't Hoff and Le Bel's views has been recently furnished by Professors W. H. Perkin, W. J. Pope and O. Wallach¹ in an extremely valuable and lucid paper which they have contributed to the *Journal of the Chemical Society* (London).

In 1906, Perkin and Pope synthesized 1-methylcyclohexylidene-4-acetic acid.



which contains no asymmetric carbon atom. At first some doubt was expressed as to whether the acid did actually conform to the formula given, but subsequent work has amply confirmed its constitution and it has now been possible to resolve the acid into a dextro- and a levorotatory modification, by repeated fractional crystallization of its brucine salt.

The racemic acid melts at 66°, the optically active acids melt at 52.5–53°; in absolute alcohol the specific rotatory power $[\alpha]_D$ is 81.4° and –81.1°, for the *d*- and *l*-acid, respectively. When mixed these acids regenerate the racemic acid of higher melting point.

Referring again to the formula given above, if the linkages represented by unbroken lines are supposed to occupy the plane of the paper and if those represented by broken lines lie in a plane perpendicular to the first, it will be observed that the plane which contains the continuous line bonds is not a plane of symmetry of the solid configuration, because the groups marked (*a*) and (*b*) are different. Similarly, the vertical plane mentioned above is also not a plane of symmetry, because the groups (*c*)

¹ *Jour. Chem. Soc.*, 95, 1789, 1909.

and (d) are of different composition. In short, even when the usual tetrahedral symmetrical configuration is attributed to methane derivatives, the relatively simple acid formulated above is found to possess neither planes, axes nor a center of symmetry, and it is this which determines the enantiomorphism of its configuration.

The original paper will richly repay perusal; it is written in the clear and interesting manner characteristic of Messrs. Perkin and Pope's communications, and it contains a most instructive account of the great experimental difficulties which had to be overcome before this most important work could be brought to a successful issue.

J. BISHOP TINGLE

McMASTER UNIVERSITY,
TORONTO, CANADA

INCOMES OF COLLEGE GRADUATES TEN YEARS AFTER GRADUATION

THE class of '99, Dartmouth College, has one hundred living members in the following occupations: Business, 25; teaching, 23; medicine, 14; law, 13; engineering, 10; journalism, 2; railroading, 2; farming 2; study, 2; clergyman, 1; chemist, 1; mining, 1; librarian, 1; unclassified, 3.

The class might be called average. Some were poor, and some were able to live comfortably in college, but every one has had to make his own way in his profession. At the decennial reunion last June, and by mail shortly afterwards, reports were received from sixty-seven of the men stating their incomes for the preceding year. The thirty-three from whom no facts were received are probably getting less income than the average of the class, but I do not think they would lower the average greatly.

The results show an income considerably higher than was thought by those whom I have consulted as to the probable income.

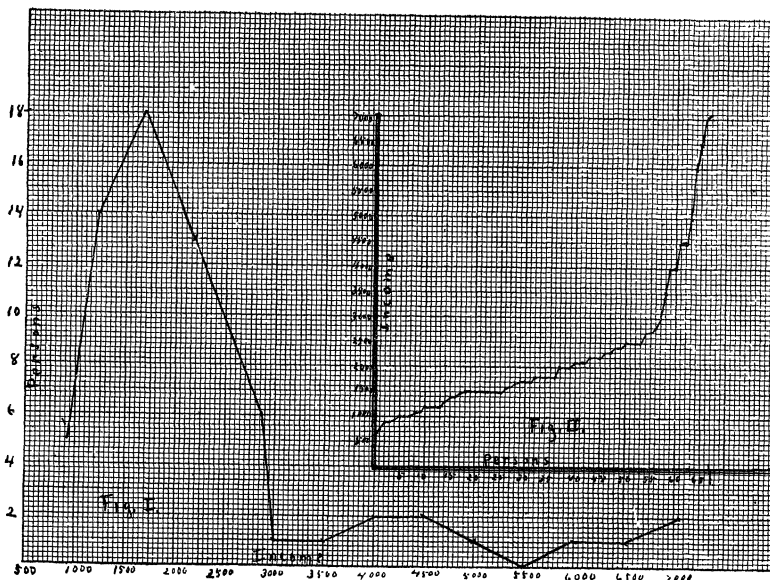
Looking at the plots we see that five men get less than \$1,000, with an average of \$832; fourteen men from \$1,000 to \$1,500, with an average of \$1,209; eighteen men from \$1,500 to \$2,000, with an average of \$1,689; thirteen

from \$2,000 to \$2,500, with an average of \$2,178.60; six from \$2,500 to \$3,000, with an average of \$2,616; and one or two in each of the next five hundred dollar groups, to one man who got \$7,000. The average income for the class was \$2,097.25. The average for the fifty-six who got less than \$3,000, *i. e.*, 83 per cent. of those who reported, is \$1,705.70. Forty men are below the average of the sixty-seven who reported.

constructed apparatus he used in taking the exquisite photographs which have given him a wide celebrity. A number of these were shown, both in ordinary finish and in natural-color photographs.

At the November meeting in the same place President Marshall D. Ewell described his lately constructed instrument, the micro-colorimeter, for comparing and testing exact and minute differences of color and tint.

Harold D. Skelton exhibited and described the new Bausch and Lomb balopticon for projection,



In Fig. 1 the number of persons in each five-hundred-dollar group is shown at the point of average income. In Fig. 2 we have the income of each individual.

The commercial value of a college education is often discussed, and it would be a matter of interest if a considerable number of statistics of this sort could be secured.

HERBERT ADOLPHUS MILLER

OLIVET COLLEGE

SOCIETIES AND ACADEMIES

THE MICROSCOPICAL SOCIETY OF ILLINOIS

THE regular October meeting of the State Microscopical Society of Illinois was held on October 8, after the usual summer intermission, at the club room, Wesslick's Restaurant, Chicago.

Francis T. Harmon gave an address on "Photomicrography," and exhibited the specially con-

structed apparatus he used in taking the exquisite photographs which have given him a wide celebrity. A number of these were shown, both in ordinary pictures and diagrams, and a variety of microscopic slides or objects shown by various members present.

Dr. S. V. Clevenger read a paper on "Comets and Star-dust," with illustrations by the balopticon.

At the December meeting, held Friday, December 10, Wm. F. Herzberg gave an address on "Crystallography," and the methods of mounting and study of crystals. Most of the evening was spent in study under the microscope of the objects exhibited by the members present.

It was resolved to give another soirée similar to the very successful one of last year, and a committee of arrangements was appointed.

ALBERT MCCALLA,
Secretary