medicine and four laymen was designated by Mr. Dazian to conduct the foundation. They are: Dr. Alexis Carrel, of the Rockefeller Institute; Dr. Emanuel Libman, professor of clinical medicine at Columbia University; Dr. Israel Strauss, neurologist, and Dr. Philip Finkle, all of Mt. Sinai Hospital; Dr. Harrison S. Martland, of Newark, N. J., pathologist and medical examiner of Essex County, New Jersey; William W. Cohen, a nephew, and the three executors of the estate, Alfred L. Rose, Harold Williams and Emil Friedlander, of Great Neck, L. I. Twenty-five years after his death, the principal of the foundation's trust fund is to be distributed to hospitals, sanatoria and similar institutions selected by the board.

A GIFT of $6,000 has been made to St. Louis University for the promotion of research in seismology and geophysics. It will be used over a three-year period, under the direction of the Rev. James B. Macelwane, S.J. Two fellowships in geophysics will be made available.

ACCORDING to the *Journal* of the American Medical Association, it is planned to open a branch of the Milan Serotherapy Institute at Addis Ababa in the near future. The construction of the building was recently begun.

THE Medical College of Virginia, Richmond, has under construction its first dormitory for men at a cost of $315,000. This building will house the house staff of the college hospitals, approximately fifty, and the senior medical class, its total capacity being one hundred and forty-seven. The building will be located in the hospital center and will contain in addition to the typical dormitory rooms a cafeteria, private dining rooms, an assembly room seating one hundred and fifty, barber shop and other facilities. The building will be dedicated next spring, probably during the centennial celebration of the college.

DISCUSSION

RECOGNITION OF MINERALOGISTS

As of December, 1936, the Mineralogical Society of America had 154 fellows and 387 members according to the report of the secretary. This society is the only one of high professional standing in America which includes crystallographers, mineralogists, mineralographers, petrographers and petrologists (as contrasted to geologists in general), and which is continent-wide. The membership also includes ceramic and cement scientists, as well as representatives of all those numerous industries whose research staffs make use of chemical microscopy, as so ably outlined by the address of the retiring president.[1] The following remarks are based on the most recent membership list[2] and on "American Men of Science" (5th ed., 1933—hereafter referred to as A. M. S.).

Two hundred and two of the fellows and members are listed in A. M. S.; this includes 117 fellows, all of those resident in North America except 17. Of these 202, 26 fellows and 1 member have a star in A. M. S., in which work stars are assigned only to residents of the United States. The 27 with stars received these at ages 25 to 62, average 43 1/3, and in 1937 their ages ranged from 50 to 80, average 62 +.

Of these 27

9 are economic geologists (all but one metalliferous)
6 combine mineralogy and petrology
4 combine one or both of these with other fields
5 are petrologists (or petrographers)
2 include a geophysicist and a botanist
1 is a crystallographer-mineralogist

[1] W. S. Bayley, *Amer. Mineral.*, March, 1937, 147–168.
[2] *Ibid.*, 227–239.

Of these 27, 15 received their stars while with some governmental bureau or the Carnegie Institution (at Washington in all but one case), and therefore were doing no teaching; this includes 2 who received their stars one or four years after leaving the U. S. Geological Survey to accept teaching positions.

If only those 16 of the 27 primarily in mineralogy and petrography are considered (eliminating the nine economic geologists, many of which profession are not members of the M. S. A., and the two miscellaneous), it is found that one half or 8 received their stars while in non-teaching work (or in two of these cases shortly after starting to teach). These 8 non-teachers received their stars at ages 33 to 55, average 44 –, and in 1937 are aged 50 to 74, average 58½. The other 8, the professional-teacher mineralogist-petrologists, received their stars at ages 36 to 50, average 44½, and in 1937 are aged 60 to 80, average 69. Further data regarding these 16 are given in Table 1.

Only two teachers have received stars since 1910.

TABLE I

Date of star	Teachers		Non-teachers		Both	
	Number of stars	Average age*	Number of stars	Average age*	Number of stars	Average age*
1933 ...	0	–	2	54	2	54
1927 ...	1	50	2	44	3	46
1921 ...	1	47	2	39	3	42
1910 ...	4	42	1	33	5	40
1906 ...	2	46	1	43	3	45

* Of receiving stars.

Except for the first edition it is very clear that for both groups the average age of receiving a star is increasing at an alarming rate, much faster than the physicians are raising the life span and on the average the non-teachers receive a star at an age nearly eight years under that for teachers. While these statistics are not suitable for drawing any very definite conclusions, it is worth pointing out that: (1) While the number engaged in mineralogy-petrology is constantly and very rapidly increasing[3] the total number receiving stars is more or less static: (2) that during the specialization which has been most pronounced in the geological sciences since the war it may have been impossible for geologists in general (outside of the relatively coherent Washington group) to vote intelligently on all the individuals in all the different sciences involved; (3) although the average age at which geologists received a star (49.4 in the last edition) is higher than that in any other science recognized by the editor, it is nearly 5 years under that applying to the mineralogist-petrologists; and (4) crystallography-mineralogy is such a highly specialized field that it is well-nigh impossible to receive recognition by outsiders for work done in it.[4]

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MORE BRAINS AND LESS MONEY

How many people to-day, even those pursuing the higher curricula of learning, students of science in general and those studying psychology in particular, understand the mechanics of the very laboratory apparatus they use daily?

That the layman regards the science laboratory as a place where wonders and miracles are wrought is a known fact. Those who have observed groups of people viewing a laboratory know with what awe and reverence the apparatus is looked upon. This is like hero-worship, like the superstitious regard primitive people hold for the natural events of the universe.

I recall, in this instance, my own experience in the eighth grade, where physics of a kind was taught under the heading of "general science." The event that stands out clearly in my mind is a demonstration of electricity with the Wimshurst machine. Truly, I had never been so impressed, so mystified and awed at the spectacle. To the entire class the demonstration was an exhibition in magic. Our curiosity was challenged; nevertheless, we could not fathom how the contraption produced electricity. Our notes told us something of brushes rubbing each other, thus producing sparks, but we felt the explanation inadequate if not incomprehensible.

As a student I had similar experiences with my classmates and found the same true of my own students in the psychology laboratory. It seems to me that students, in general, have two major intellectual fears—the fear of mathematics and of laboratory apparatus. Both of these items are little understood and mastered only by a few. The rest of the students carry away with them a feeling of inadequacy or inferiority, even dislike for these tasks, because they do not—not that they can not—master them.

The pursuit of science to-day, even in an elementary course, is a very complicated task. Our derived data must come out through a highly technical complex process which is far removed from the meaning of the actual results obtained. For example, many people know how to "snap" pictures, but this does not mean they can explain the process of photography from its physics and chemistry point of view, which is the true explanation. Similarly, students learn operations and manipulations of complex apparatus but do not know the significance of their work. Therefore, the benefit derived from a laboratory course is very much reduced. The educational world seems to be interested in data and not in how the data are secured. This is a decided handicap to clear and effective thinking, as I see the problem. I am inclined to the view that by this means of a synthetic laboratory training we tend to inculcate into the student mind a superficiality as regards the critical examination of phenomena. Decidedly, we steer the student away from the *cause* of events and insist, indirectly, that the *effect* is all that matters—the data are what the student has to examine and not the means of securing the data.

Circumstances have arisen which forced upon us the opportunity to redirect the emphasis on laboratory study. With little or no apparatus available we were asked to teach psychology as a laboratory science. True, we could have borrowed apparatus, but such was not our purpose. The simple and obvious plan was to make apparatus-construction a part of the laboratory procedure. Consequently, I asked for volunteers to construct mazes, mirror-drawing apparatus, tachistoscopes, apparatus for conditioning sight and sound to electric shock, coordination boards, which registered the number of contacts by means of a door-bell buzzer, weights to be used for the size-weight illusion experiment and many other pieces of apparatus needed in a laboratory of general psychology, as a color-wheel, etc.

While I acted as adviser, the students really built the apparatus with their own ingenuity. I would refer them to text-book plates and laboratory manuals; at the same time I was cautious not to do the thinking

[3] Well shown by the graph on page 201 of the March, 1937, number of *The American Mineralogist.*

[4] F. B. Littell (SCIENCE, May 14, 1937, 477) finds that international "Who's Who" for 1937 lists 6 British mineralogists (among 336 scientists) but only 3 from the U. S. (of 605 scientists).