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Mathematics and Individual Talents

Kenichi Bannai

I often hear people say that mathematics is difficult or that they cannot figure out how to solve mathematical problems. I understand completely. As a mathematician, I also daily face mathematical phenomena and problems that I'm not sure I would be able to understand or solve. Nevertheless, if I keep trying to understand or struggle for a solution, the truth begins to reveal itself a little by little. As in the famous quote "There is no royal road to mathematics" by Euclid, it is not possible to acquire mathematical ability overnight.

When thinking about mathematical geniuses, one may imagine someone with inborn talents who can immediately understand anything mathematical without any effort. However, as Terence Tao, who was awarded the Fields Medal for his overwhelming achievements, wrote in his blog, mathematical ability may be greatly enhanced through effort. Just as the skill of world-class athletes and musicians are made possible by their tireless daily effort, the ingenious ideas by mathematician to find solutions to problems also result from daily effort.

When encountering a totally new concept or an extremely difficult problem, any mathematicians, no matter how talented, need to take time and think deeply. Just like a muscle, the power to think can greatly improve by applying a heavy load. If you carelessly think that you may not have talent, you may prematurely give up in a stage where everyone finds things difficult.

For example in the past, many people mistakenly believed that women had lower mathematical ability. I would imagine there were women who were discouraged and gave up learning mathematics. However, due to advancement in education, the difference in the US of distributions of scores in a standard mathematics test for male and female high school students. This indicates many women were able to free themselves from bias concerning mathematical ability.

One feels better when after physical training and your body is more fit. Likewise, it is very pleasant to find yourself with improved ability to think after persistent effort. Mathematics requires effort to understand, but this is what makes the world which opens up the more exciting!

Science and Technology **Information**

The 16th KLL Industry-Academia Collaboration Seminar

http://www.kll.keio.ac.jp/
Date: February 22 (Fri.), 2013

This seminar will introduce our research activities related to "precision machining", "actuation" and "simulation" which are the core themes of mechanical engineering. Details of this seminar will be published on the above website.

Construction work starts on the New #34 Building (tentative name) of the Faculty of Science and Technology (on Yagami Campus)

On December 12, 2012, the groundbreaking ceremony was held for the construction of the New #34 Building (tentative name) of the Faculty of Science and Technology (on the Yagami Campus) as one of Keio's 150th anniversary projects. The new building is expected to serve as an educational venue of practical experiments for students in the mechanical, chemical and administrative engineering departments as well as an ideal environment to nurture top-notch talents in our science and technology fields. The building is scheduled for completion in January 2014 – the year our Faculty of Science and Technology will celebrate its 75th anniversary.

Artist's concept of the building upon completion.
(The white building in the upper part of the visual on the left)

Editor's postscript

The composition of Mr. Bannai's portrait on the front cover was decided by himself wishing to create an image of Mr. Bannai ready to talk with individual readers of this issue of "New Kyurizukai." During the actual photographing, we had one of his lab's students stand behind the camera and keep talking with Mr. Bannai while shooting. This indicates just how Mr. Bannai values dialogues with others and wishes to visualize his intention in the photo.

For the interview and photographing, he appeared wearing a light blue shirt and began talking in a mild tone and with gentle smiles. While it is customary to wear suits at academic meetings for engineering, he told us that participants at scientific society meetings would regard such clothes as out of place – a difference between the two academic societies.

Beginning with this issue, I (Ms. Yuko Nakano) have become in charge of this bulletin and look forward to meeting a number of up-and-coming research scientists. I am determined to do my best so that we can deliver information about the attractiveness of these researchers' themes as well as their individual characters.

(Yuko Nakano)

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