A Private Mathematical Lesson, Rio de Janeiro, 1933.[*]

Uma Aula Particular de Matemática, Rio de Janeiro, 1933.

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Abstract: This essay is an inquiry about the first steps of Maurício M. Peixoto (1921 - 2019), in the early thirties, leading to his mathematical awareness.

Keywords: Elementary Mathematics. Laws of Mathematical Operations. Maurício Peixoto.

Resumo: Esse ensaio é uma indagação sobre os primeiros passos de Maurício M. Peixoto (1921 - 2019), no início dos anos 30, levando a sua tomada de consciência da matemática.

Palavras-Chave: Matemática elementar. Leis de operações matemáticas. Maurício Peixoto.

A remedial mathematics class, Rio de Janeiro, 1933.

Prof. Nelson Chaves arrived punctually. He had been called to deliver a remedial mathematics lesson for a twelve years old, first year High School student, who had flunked the final examination in that subject and was summoned to take a second, and last chance test. In case of a failure he would have to repeat the whole first year.

The parents, Mrs. Violeta Rodrigues Peixoto and Dr. José Carlos de Matos Peixoto were concerned. For the boy, Maurício, it was his first year in High School in the capital of the country. He had finished Primary school at a less demanding mathematical enviroment, in the distant Fortaleza. At the prestigious Pedro II traditional High School, the expectation for good performance was higher.

A glance in Maurício's copybook, which he had requested previously for the first meeting, revealed to Prof. Chaves that the boy didn't have clearly assimilated the rules for operating with algebraic expressions. However he was able to draw nice sketches of very regular figures of circles, triangles and squares.

Prof. Chaves had taken in his briefcase some printed pages with numerous exercises involving arithmetic and algebraic expressions, some of them worked out, and others, in increasing degree of difficulty, to be resolved.

He started saying:

Today we will review the rules – or laws – for the correct operation with mathematical expressions, numerical and algebraic.

These rules have names and the most basic ones are the associative and commutative laws. They act on the operations of addition and subtraction, multiplication and division. The symbols of parentheses and brackets help to operate with the expressions when they appear sequentially.

With a smart calligraphy, Prof. Chaves started working some the examples and gently telling what he was doing, clearly stating the names of the rules and symbols that he was using.

Now you will work out the following exercises on your own. He said and let him do the job alone.

After the first round of the session of exercises, in a solemn tone, Prof. Chaves said to Maurício, who was attentive:
the secret for the assimilation of mathematics is to have the rules clearly in our mind and to work out many exercises.

Wide-eyed, the boy reacted approvingly.

Toward the end of the class, in a short private conversation with the parents, in a very solemn voice, as if he were pronouncing a sentence, Prof. Chaves said:
if the boy studies enough he will surely learn, and perform successfully in the examination.

Dr. José Carlos, who was a lawyer, declared himself highly impressed by Prof. Chaves self assurance. He also regretted that they had not noticed earlier the need to request his help.

When he went to say goodbye to Maurício, Prof. Chaves found him diligently working on the exercises.

After a look on what he had done, he passed to the boy a new list of exercises that were due at the beginning of the next class.

When they were shaking hands, Prof. Chaves announced: "*Next class we will review factorization*", and Maurício politely asked: *Can you tell me next time how and when this business of rules and laws for mathematical operations was invented?*

Prof. Chaves, himself a student of Engineering and a young teacher of Mathematics for action, had to do some library research and to confer with more experienced colleagues. He could not leave his pupil from Fortaleza without a satisfactory answer.

Meanwhile, Maurício spent long hours working out extensive exercises, operating with, and simplifying, algebraic expressions, keeping very present the laws for their correct handling.

Concluding comments.

The classes received by Maurício M. Peixoto, the first of which is outlined in the present essay, awoke his interest for Mathematics. At some undated stage of the lessons he had the strong feeling – an insight – that it was Mathematics the subject that he liked above all. Then, despite his youth, he made the solemn decision to chose a profession involving it.

During the following years he pursued this aim, becoming a remarkable mathematician.

Now, jumping from 1933 to 1955, in connection with the interaction between insight and Mathematics, it is worth mentioning the occasion event in which Maurício became aware of the Theory of Structural Stability, see [10], which became one of his main domains of research, for which he received the TWAS Mathematics Award, 1987.

Below are mentioned some sources pertinent to the scientific biography of Maurício M. Peixoto and his achievements. See [1, 2, 3, 4, 5, 6, 7, 8, 9, 11].

Acknowledgements:

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