

### Shafarevich's position

Since returning from my second year in the USSR (I left Moscow 9<sup>th</sup> September 1976) a number of mathematicians have expressed interest in Shafarevich's well-being: I record my impressions for those who are interested.

Shafarevich and his family are very well; he spent a month during the summer on the White Sea, and returned with an imposing white beard. Both mathematics and his political activities take up a lot of his time but he still finds time for the occasional hiking trip to the country with his Newfoundland "puppy" Daif - which has by now grown to terrifying proportions.

Mathematically, his school is flourishing; Bogomolov's work on vector bundles on surfaces and the Rudakov-Shafarevich proof of the absence of vector fields on  $K3$  surfaces in char.  $p$  are the two most spectacular results to come out of his school in the last year, and his group remains the most active mathematical school (overlapping with Arnol'd's) in the Soviet Union.

In addition to the book on religion (YMCA Press 1972 (?)) and the articles in the Solzhenitsyn collection "From under the rubble", there is a new book by Shafarevich (On Socialism, I believe) to appear in English and Russian in the YMCA Press.

Shafarevich was excluded from Moscow University about a year ago, and there are continuing attempts to prevent him taking on new students, and to prevent him having the opportunity to influence students in the university. However, there have so far been no explicit moves against him in the Steklov Institute.

Zhishchenko's thesis. In January I was present at the defense of Zhishchenko's thesis. Zhishchenko was once a favourite pupil of Shafarevich (he is the author of the first few chapters of the book on surfaces), but he has in recent years become a career man, and it seems a mathematical charlatan. He holds official positions in the Steklov Institute, and is said to have great influence in the selection of those Soviet mathematicians who are allowed to go abroad; I have heard it claimed that he also works for the K.G.B.

Such a position in a scientific institute represents a great chance for an adventuring type to improve his position in Soviet society. In the event of Shafarevich retiring (or being retired) from his position as head of the Algebra Section, it is quite possible that Zhishchenko will be chosen as his successor. Getting his Doktorat, a very much higher degree than the Western Ph.D. (there are only 4 or 5 algebraic geometers with the title in the Soviet Union) is a very important step in such a career.

Zhishchenko was awarded his Doktorat on the strength of a thesis on homological methods in fibrations of algebraic varieties (it is to appear in one of the Soviet Journals). At the defense a letter from Arnol'd was read, saying that there was not a substantial result in the thesis that was correctly proved. On account of the turgid style it was impossible to find the exact places where the mistakes were made, but many of the intermediate steps in the proofs contained untrue results. The thesis claims to prove a theorem of Deligne on invariant cycles but the proof contains an assumption (made from "certain geometrical considerations") equivalent to the result.

Shafarevich then spoke for about ten minutes, giving counter-examples to some of the lemmas used in the thesis, and pointing out that it is doubtful whether the purely topological methods used are in principle capable of proving the result of Deligne.

The official "opponents" V.P. Platonov and A.N. Andrianov gave the usual positive appraisal of the candidate's student and Komsomol record, his keen participation in official political activity being particularly praiseworthy. The thesis was praised as the "first in the Soviet Union" to apply cohomological methods to algebraic varieties, etc.; despite the fact that the "opponents" had been warned in advance of some of the apparent holes in the work, these were completely overlooked. It was actually suggested in the course of the open debate that Arnol'd and Shafarevich were somehow acting incorrectly in attempting to interfere with a "perfectly normal" thesis defense.

In the event, the thesis was accepted unanimously by the 22 academicians present - Shafarevich's vote against being quietly ignored.

The Tyurin-Iskovskikh seminar. An attempt was made to close down a seminar run in Moscow University during the spring semester officially by A.N. Tyurin and V. Iskovskikh, but known to all the participants as the Shafarevich seminar. The objection from the official point of view to Shafarevich running a seminar in the university is precisely the mathematical advantage - that he will have a wide influence on students. A seminar run in the Steklov Institute attracts a far smaller audience.

In the event, they chose a bad day to act. A.I.Kostrykin and an unknown strong-arm man turned up to claim that the seminar was out of order on precisely the day that Suslin (from Leningrad) had attracted an audience of 40 or more mathematicians wanting to hear his elementary proof of the Serre Conjecture, and not particularly sensitive about procedural matters. There was five minutes' haggling, it being claimed that there weren't lecture rooms available (a favourite ploy, already used against Shafarevich) that A.N.Tyurin had not been present for the last two meetings and so could not be considered as one of the organisers of the seminar, etc.; eventually the seminar was allowed to proceed "just this once".

Arnol'd was the speaker the following week which also meant a big audience, and there were only two more meetings that Semester, so that the matter was dropped. However, Tyurin has been told that he's not entitled to run a seminar in the university in future.

Dedications. Two papers by A.N.Tyurin in Uspekhi Mat. Nauk originally dedicated to Shafarevich were published without the dedication; the first was "Five lectures on 3-folds", whose dedication was removed by the editors during the proof-reading. The second paper, "On intersections of quadrics" was delayed for several months; the dedication has been reinserted in the L.M.S.'s translation.

This rather petty action should be put down to pusillanimity rather than malice on the part of the editors; ultimate responsibility rests with the head editor, Aleksandrov.

Conclusion. There are basically two attitudes to Shafarevich within officialdom. The first, or "soft" attitude is that he is a good scientist, honest man, etc. but misled by his unfortunate acquaintances (Solzhenitsyn, Sakharov, etc.) into only seeing the negative sides of Soviet society; this attitude is taken by many scientific or academic party members. On the other hand the "hard" attitude (taken by people to whom scientific values count for little) is that he (and others) are traitors, pandering to Western anti-Soviet opinion out of sheer anti-patriotic spite, and are a nuisance that has to be eliminated. In this connection it is worth noting that Shafarevich is possibly a much bigger "nuisance" than Sakharov and co., since his association with Orthodox Christianity gives him a very wide popular support which purely intellectual or political dissidence would not afford.

In any case, further action against Shafarevich - expulsion from the Steklov Institute to begin with - remains a constant threat; and it would take only a slight shift in the political climate to make criminal proceedings (on grounds of defaming the State, spreading anti-Soviet literature, etc. - the charge can easily be faked) a definite possibility. Any such action will be instant, without warning, as was the expulsion of Solzhenitsyn.

I hope all world mathematicians will consider seriously ways in which they can express their support for Shafarevich both immediately, and in the event of action against him.

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Tokyo, 6<sup>th</sup> October 1976.

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