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Author(s): Vladimir Lagovskiy under the ''Sensation'' rubric: ''Flight to Alpha Centauri'' ; boldface as per source text]

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FULL TEXT OF ARTICLE:

1. [Article by Vladimir Lagovskiy under the ''Sensation'' rubric: ''Flight to Alpha Centauri''; boldface as per source text]

2. [Text] Specialists at the Experimental Machine Building Scientific Research Association have created a high-temperature superconductor that loses its electrical resistance at 80 degrees Celsius. It breaks the old confirmed world's record by nearly 100 degrees Celsius. Moreover, there is proof that this is not the limit: Superconductors may be created at 850 degree Celsius. And it may be used as the basis for constructing a fundamentally new type of spacecraft capable of reaching light speed.

3. On a **Flying Saucer**

4. From the outset, we acknowledge this as fact. The rumors that the military-industrial complex, which is precisely the owner of the Experimental Machine Building Scientific Research Association, is in all seriousness interested in ''flying saucers'' and considers them to be real. I have the document in front of me. It is called ''Protocol for a Future Method of Aircraft Travel.'' On top is the customary ''Approved by'' signature stamp followed by the signature of the deputy commander of the military unit and his official stamp. Next comes the date and site of the test and the test object. And then there is the objective, at which point it is written that the experiments were conducted to assess the effect of the movement of a bulk high-temperature superconductor subjected to the effect of a flux of fast-moving electrons in accordance with the aircraft research program developed at the Experimental Machine Building Scientific Research Association and the N-th military unit.

5. It is no accident that I am presenting these data in such detail. Our stereotypes are strong. Indeed, many will say that ''saucers'' means ''newcomers.'' And newcomers are gibberish. No, this matter is uncommonly serious. This is no discussion of fantastic hypotheses but of the current rift between technology and fundamental knowledge. The ''Protocol'' is not the only such affirmation. There are also patents, inventor's certificates, and applications for discoveries and inventions.

6. ''What we are proposing,'' says Vasiliy Shabetnik, senior scientific associate of the Experimental Machine Building Scientific Research Association and candidate of technical sciences, ''is a fundamentally new method of space travel. And we can demonstrate it.''

7. Here is the so-called Mohammed's grave-a saucerlike body made of a cooled superconductor sailing freely in a magnetic field. Nearly all developers of high-temperature superconducting compounds have ''toyed around with'' this focal point. And it has excited its enthusiasts' imagination. It seems that this is just how one can fly over the earth in some sort of miracle craft. It is possible. There are no theoretical obstacles. But here is the problem: On closer examination, this generally sensible idea turned out to be fraught with irresolvable technical problems.

8. To rise above our planet in the geomagnetic field, for example, a ''saucer'' would have to create its own incredibly strong magnetic field. And this is far from easy, even with the superconductors themselves. But suppose a way could be found? How would it move in space, which is chock-full of magnetic fields?

9. ''The ship would need to be equipped with additional sustainer engines,'' the enthusiasts shouted back. That was, of course, the way out. Only would the game be worth the candle?

10. In a word, for reasons that are entirely understandable, many specialists consider such methods of travel more hypothetical than realistic. And so a solution was found. It was a simple one, as it should have been.

11. An experimental unit. A flux of fast-moving electronics would fly from an accelerator and be carried along with a model made of a superconductor. And ''Mohammed's grave'' instantaneously jumped to the side in the flash of an eye.

12. ''Now imagine a real spacecraft,'' says Shabetnik. ''Its body is will be covered with a high-temperature superconductor. Fast-moving

electron emitters will be mounted in a circle. The charged particles will bathe the ship. As they move, they will create a current and an electromagnetic field. And a field and current will simultaneously arise in the superconducting layer. What will happen? The fields and currents will begin to interact with ampere force. Simply speaking, their carriers will repel one another. And this is incomparably more efficient than the interaction of the simple electromagnetic field of a craft and the earth's geomagnetic field. The ship will soar and appear to sail in the very electron medium that it formed around itself.''

13. The sphere is the ideal shape for interstellar travel. ''Saucers'' are best for travel in the atmosphere. It is therefore obviously necessary to create a craft with a changing geometry. Its start from the surface will require only an extremely modest electrical force. About 100 amperes will suffice for a 5-ton spaceship. It will be easy to maneuver by increasing or decreasing the currents along its sides.

14. From a Superconductor

15. Scientists are essentially proposing an electromagnetic method of travel. But it has been fundamentally modernized. The idea itself is not subject to doubt. But will it be possible from an engineering standpoint? Superconductors are needed. The record, i.e., minus 80 degrees Celsius, would be fine for space. There the temperatures are much lower. But this threshold is not enough for the atmosphere.

16. ''But have you forgotten,'' wonders Vasiliy Dmitriyevich, ''that we have proposed superconductors that maintain zero resistance at 850 degrees Celsius?''

17. ''I have not forgotten. But all that is still just plans.''

18. ''Yes, they are just plans, but they are entirely realistic.''

19. Shabetnik and his colleagues are certain that they have discovered new fundamental laws governing the structure of matter. This knowledge makes it possible to explain the properties of matter in a way never attempted before-on the basis of probability and statistics. A more natural approach has been proposed.

20. Researchers have demonstrated, for example, that the physical parameters of all elements depend on the number and state of their elementary particles. It has even been possible to establish the shape and structure of these building blocks. And it has turned out that everything in the material world around us is subject to exact calculation. Everything from boiling point and entropy to

superconductivity is a phenomenon that may be discovered but could not be explained from the standpoint of previous principles. And where there is exact calculation, substances with prespecified properties may be designed. That is how scientists initially theoretically predicted the existence of a superconductor at minus 80 degrees Celsius. And then they produced it. And the result confirmed the theory exactly. And now a plan for 850 degrees has appeared. And there is no basis for suggesting that it will not be successful.

21. ''I will not stop until all secrets have been revealed,'' says Shabetnik, ''but I give a hint that ordinary iron may become the basis of the new superconductor. The intricacy will be the energy order of arrangement of the rest of the elements.''

22. ''Okay. But what fuel do you intend to use in space?'' I suddenly remembered.

23. And Almost With a Perpetual Motor

24. ''Will you place a nuclear reactor or a thermonuclear reactor on the ship? Or perhaps you will return to the energy of a vacuum?''

25. ''Neither of the three,'' answers Vasiliy Dmitriyevich. ''Do you recall yet another sensation that burst forth about the same time as high-temperature superconductivity? I mean, when the discover of what is called the ''cold thermal nucleus'' was announced in the United States. This effect was later reproduced in many laboratories. It was reproduced but again left unexplained. And why? Because they tried to find signs of thermonuclear reactions where none exist.''

26. ''I remember those experiments well. I even observed one at Moscow State University: a tank with heavy water, two live electrodes, and no idea where the additional heat was coming from. But if its source was not a ''cold thermal nucleus,'' what then was it?

27. ''We call the phenomenon 'energy conversion.' And that very tank is a primitive model of a converter. The water in it boils. To put it in scientific terms, a phase transition takes place. The particles in the water move in an ordered fashion on account of the electric field. According to our theory, in such cases phase transitions yield an increased amount of thermal energy. The gain is a factor of 2.12 to 4.2 higher than the work expended.''

28. ''Wait, wait,'' I said while trying to digest what I was hearing. ''Does this mean that a perpetual motor has been produced?''

29. ''No. The internal energy of the matter has been extracted.''

30. ''And can it be used in some way?''

31. ''If you please. You could even build power plants instead of conventional ones. But I repeat, it will all be unbelievably primitive-water, boiling....And of course, such a converter would not be fit for space flights.''

32. ''We have found an electric analogue of processes involving energy conversion,'' continues Shabetnik. ''And energy can be extracted not just from water but, let's say, from metal as well. It is conceivable that you could connect our converter to an electric generator. And the output would be fourfold the energy that it could provide while operating conventionally. A fourth could be diverted to feed the generator, and you would have the rest as a gift from your microworld.

33. ''But in reality everything is of course more complicated. In essence, an energy converter consists of several devices working in conjunction with one another. The main components are a closed superconductor and control system. They are for ground needs. The electron accelerator that is connected to the circuit transforms the converter into a spacecraft engine. With its help, a spacecraft can fly to Alpha Centauri and back to earth in 12 years.''

34. ''Has it been possible to recreate these processes, if only in experiments?''

35. ''Yes. Otherwise I would never have told you anything. According to our calculations, the energy hidden in a kilogram of iron is completely sufficient for interstellar travel.''

36. As far as the future is concerned, let us say straight out that it is fantastic. Even without flights to other worlds. Indeed energy converters will be used to meet needs on earth. The time has already come to dream not only of miraculous generators capable of replacing nightmarish nuclear and thermal power plants or of new means of travel. Our entire lives will be turned around.

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