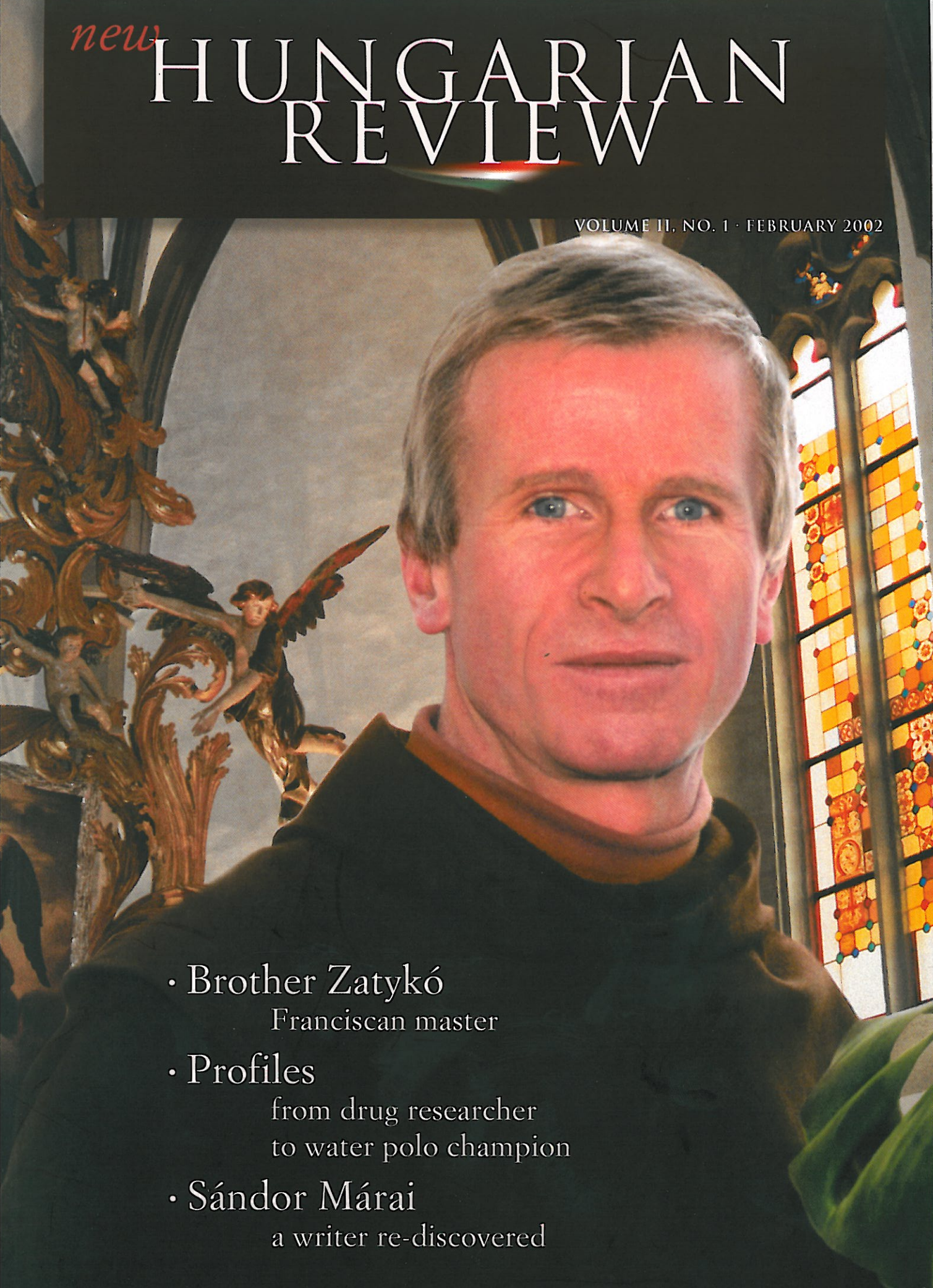


new

HUNGARIAN REVIEW

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Franciscan master
 - Profiles
from drug researcher
to water polo champion
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a writer re-discovered



A Taste of Hope

In my view, inspiration, knowledge and intellectual power are invaluable.

What I am getting together is something that money can't buy. I am organizing an intellectual research base worth a billion dollars.

Mária Vágner

Ave Maria – these are the first two words in Latin of the prayer to the Virgin. The name of the product Avemar was composed from these words. Máté Hidvégi, drug researcher and inventor of this last hope of many a cancer patient, also has the development of Esterin, an anticholesterol agent, to his credit. What is even stranger of a scientist, he has been a regular contributor to a literary weekly and co-founder of another periodical of a similar kind. He writes essays on cultural history and takes an interest in art.

Biochemistry has never been the only thing of interest to me. I pursue literature and cultural history as a hobby. I do scientific research, then I engage in cultural history, and then I return to biochemistry and chemistry again. I do have joy in life, you see, because my work is varied, and variety is the very spice of life.

Tell me about your family background. What have you brought with you from home?

First, and perhaps most important of all, a committed faith in God. I have also been brought up in the love of art. My mother, Katalin Dávid, is an art historian. A lot of artists would regularly visit our home, and my mother would also take me to various places like the so-called Architects' Den, a favourite haunt of the Budapest intelligentsia, frequented by first class artists and writers such as



the painter Béla Kondor or the poet Pilinszky. It was a place where discussions were really to the point.

My father, György Hidvégi, can still outdo me in work. He is an economist and is known all over the city. Whenever he happens to go, he is constantly stopped by people, he is always talking to people, acquaintances come and go all the time, because he has spent all his life helping others.

My father is a Hungarian Jew. They are a peculiar lot, Hungarian Jewry, since they are utterly Hungarian as to their culture, attitudes, etc; at the same time, they have their Jewish religion, their faith in God the Creator, and a very special, deep-seated love for Israel.

And what about literature?

I have always been fond of literature. I wanted to be a writer or a journalist, but in the end I came to avoid the arts faculty for practical reasons. Literature was understood in terms of ideology at that time. I was sure it was not my cup of tea.

I had a good friend who was already a lecturer at the Technical University of Budapest. They trained biochemists, and he suggested that I should apply. Well, I thought, if the Technical University was all right for Zoltán Latinovits, the eminent actor, it would be all right for me as well. I somehow got to like this field, too.

You didn't like it at the outset?

No. But once in the first year they herded us into a big laboratory. The day was drawing to its close, the lights had been turned on, Bunsen burners were gleaming with bluish flames. The light from the street glimmered through the windowpanes. The glittering glassware, the flasks and tubes with coloured liquid in them, the whole atmosphere of the place, the smell of chemicals, the swish of white coats – the whole scene was so fascinating that chemistry somehow became meaningful for me and I started to develop an interest in it from that time on.

Chemistry is also part of your family history, isn't it?

My mother's father, Lajos Dávid, was a man of Armenian descent from Kolozsvár (Cluj), Transylvania. In the wake of the Trianon Treaty (or territorial rectifications, whatever you call that disaster), the University of Kolozsvár was transferred to Szeged. My grandfather also moved there with his family in 1921, and became the founding professor of the Pharmaceutical Institute at Szeged. He was a notable chemist, inventor of several medicaments. One of them was manufactured by Bayer under the name Prodal, an acronym formed from his title and name in Hungarian, Professor Dávid Lajos.

He was an interesting man, an Armenian. That's another specific lot, the Armenians of Transylvania. Whenever I travel around in Transylvania, it seems to me now and again that the man coming up the street is my grandfather.

Was it in following in your grandfather's footsteps that you took up pharmaceutical research?

No. I graduated from university, but I was always annoyed to feel that I was at a distance from people. I even started to feel sorry for not having trained to become a physician. It was my discontent that triggered my interest in pharmaceutical research.

Your first significant achievement ten years ago was the development of an anticholesterol extract called Esterin.

Having received my M.Sc. in chemical engineering from the Technical University, I started to work for the Grain Trust, that is, in the grain milling industry. It took three years of my life, and was a most worthwhile education. That's where my wheat germ research had its beginnings. I was awarded a post-doctoral fellowship in Canada, and conducted basic research on wheat in the Research Laboratory of the Canadian Grain Commission. Of course, the research I did when I was working on Avemar cannot be disconnected from this past.

How did you end up doing pharmaceutical research?

I had always wanted to do something useful. I would never be content to simply spend my days earning a living. Pharmaceutical research seemed to me something attractive and beneficial; you could use it to cure people. If I focussed my attention on a well-defined area of curing a disease which affected a lot of people, I pondered, even the smallest results might bring great benefits.

So I had to decide what was it that most people died of, and found that it was cardiac and circulatory conditions. Here, cholesterol was one of the risk factors. So I produced the substance called Esterin, an extract from lucerne leaves. The leaves of lucerne contain molecules capable of binding cholesterol. If we could produce an extract from them, I thought, it would be possible to reduce the amount of cholesterol with which the human organism is burdened.

It sounds terribly simple. How did you know it was lucerne that you should start out with?

I had also done some research on fodders. Fodders contain certain substances with which the animals should not be overfed as they impede the absorption of other nutrients. I found, for instance, that the absorption of fats was inhibited by a certain group of substances. So I started to study this phenomenon. The literature said the presence of these substances could be demonstrated by the addition of cholesterol, as it would be precipitated by these substances. Here we had, I inferred, something to start out from.

Experts in Hungary refused to believe it would work. Years passed by, and the extract also found its way to Israel. It gained attention there, at one of the best lipid clinics in the world (a 'lipid clinic' is a hospital department devoted to the care of patients with high cholesterol levels). During the course of a clinical study, Esterin was given to patients, and the results obtained were very good. Today, Esterin is used in many countries, not only in Hungary.

Is it an approved medicine or a medically uncertified preparation with curative power?

At the moment, it is classified in Hungary under the heading of 'medically uncertified preparation with curative power'. It will probably obtain accreditation in a few years. In other countries it is either classified as a drug, or as a fito-therapeutic preparation. People believe a drug is

something more effective, although these are merely legalistic terms. Camomile flowers, for instance, are extremely effective, and yet camomile is not called a medicine. Not because it has no curative effect, but because it would be pointless to put it through a lengthy and costly accreditation procedure.

The name 'Esterin' is also an allusion to a person close to you, isn't it?

Yes, the name was taken from my wife, Eszter. People tend to think the name was given by me, but it was actually my father's idea.

Avemar, the wheat germ extract, was devised in Hungary, produced as a result of the work of Hungarian scientists, and will hopefully come to full fruition in this country, too. If this happens, the pleasure over science having taken another step towards suppressing cancer will be coupled with the pleasure in having achieved this here in Hungary.

It was back in the 1980s that I thought, something should be done about cancer. That is, of course, everybody's dream. I was aware from the outset that it wouldn't make any sense to look for a substance capable of curing cancer, because I would never find one. What I really needed was a hypothesis to start out from. And indeed there is one great theoretical work in the literature which deals with cancer as a whole, and it was written by Albert Szent-Györgyi.

He had his own peculiar theory of cancer. 'As far as I can remember', he once told a journalist, 'cancer research has always been aimed at developing a rapid cure of the disease. That is pure nonsense. The cells in our bodies are as intricate as any clockwork you can ever imagine. The first thing you should find out about them is the way they are put together, the way they work. When it comes to cancer, no one ever raises the question.'

Szent-Györgyi would always take a different view of things, and for this reason he was not very much liked by his peers. His theory encompasses the whole from electrons to the sick person. Of course, it is only a theory, which is not necessarily true, but still a fixed point to set out from, a springboard whence thoughts can jump off in the right direction. I resolved to produce a substance in accordance with Szent-Györgyi's theory. I first started to work with methylglyoxal, but I gave it up because it seemed to be toxic. In Szent-Györgyi's theory there were hints of a different way as well, but he didn't live to follow it through.

In his later years, Professor Szent-Györgyi was hoping to find in wheat germ and yeast the antidote for cancer. Legend has it that he adopted the idea from a guest who had taken up lodgings in his house in Hungary. At breakfast, the Nobel laureate saw her spooning some strange 'stuff' into her mouth, and asked what she was eating. 'A mixture of wheat germ and yeast,' was the reply, 'spilt over with a little milk. I have been as fine as a fiddle ever since I started to have it.'

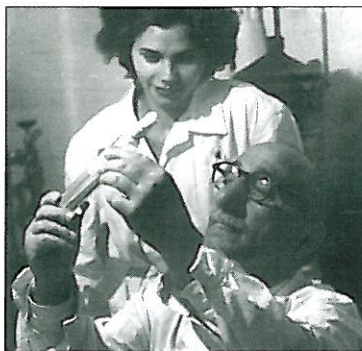
Szent-Györgyi's curiosity was aroused. What might be the reason? It has been known for a long time that the germ is the most nutritious part of the wheat grain. It is full of vitamins. Yet it is removed when the grain is ground because the presence of germ in the flour would prevent the bread from becoming spongy. One of the ingredients in wheat germ prohibits the formation of cross-linking between molecules. However, the addition of vitamin C, or the treatment of the wheat germ with certain microorganisms such as yeast, produces a compound called benzoquinone, which conserves the aleurone. It was this conservatory effect that attracted Szent-Györgyi's attention.

He kept working on this in the last two years of his life. And I decided to make this my point of departure. Here, the main role is played by benzoquinones. What we needed, I concluded, was a natural extract relatively rich in benzoquinones. Wheat germ seemed obviously most suitable for this purpose. So we started to work.

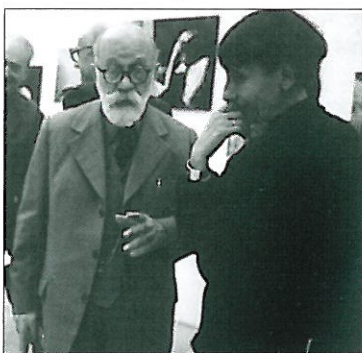
A good friend of mine, organic chemist Gábor Fodor, used to be one of Szent-Györgyi's closest collaborators. He lived in the United States. He told me that Szent-Györgyi's lab in the US was being wound up, and the stock of chemicals would be distributed among former colleagues. He was due to receive the substances in relation to benzoquinone research. He was, however, not interested, and suggested that I should take it over.

At that time we expected benzoquinones to turn out to be the active ingredients in Avemar. Today we are already aware that benzoquinones are not the active ingredients, or not the only ones. We are now looking for the real agent that brings about the intended effect.

The substances arrived and I started to work at the Technical University with the assistance of one of my students, Rita Farkas Tömösközi. But the early nineties were such a miserable period, there were no funds. The dean said it would be a great loss to stop research of such significance and he asked me to try to find some solution on my own. Avemar research continued in different locations. Also outside the country; in Austria,



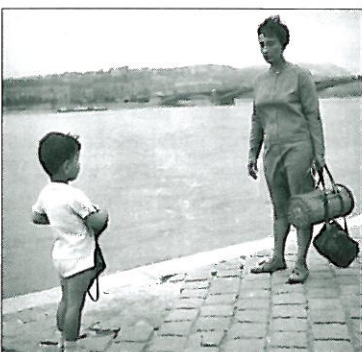
The biochemist grandfather



Mother with painter Jenő Barcsay



Little Máté with his father...



...and mother



for example. A former disciple of Szent-Györgyi had offered us a fully equipped laboratory in Graz. Rita relocated to Graz, while I drove there once or twice a week. We worked and discussed what should be done next, and then she carried on by herself. So we were getting on, quite slowly, I should say.

At that time, you yourself were not aware what you had laid your hands on. Animal tests, however, far surpassed your most sanguine expectations.

I took Avemar to the Experimental Cancer Research Institute of the Medical University, and told them it was a stuff that fought cancer. People regularly approached them with such assertions, they said smilingly, but none of them had worked. I asked them to put Avemar to the hardest test possible, in some extreme and barely controllable condition, and they agreed to try it out on a type of tumour with a strong tendency to metastasise. So they did, and obtained excellent results.

What sort of tumour was it?

It was a sort of pulmonary cancer with an excessive capacity for wide-spread metastases. Avemar significantly reduced the spread, or metastasis, of cancer cells. The issue of metastases is a crucial one in oncology. Contemporary medicine is usually capable of coping with the primary tumour. The hardest part comes, however, when metastases are detected.

In Hungary, approximately 40,000 people die of cancer each year; most of them due to metastases. For this reason I was pleased to find that Avemar had proved effective in fighting metastasis. After that, another series of animal tests were conducted at the institute. Avemar was found to be effective on the metastatic variations of many different cancer types, that is, it was found to reduce metastasis by 50 to 90 per cent.

At one point, someone suggested that animals should be treated with cytostatic agents as well. It was these tests that attracted the most attention from the international medical profession. It turned out that if the animals were only treated with cytostatic agents, metastasis was reduced, but not completely. Again, metastasis was reduced when they were treated with Avemar, but still persisted to some degree. When, however, the use of Avemar was combined with cytostatic treatment, no metastasis could be observed.

Avemar is capable of reconstituting impaired immune functions, bringing immune defences (whether too high or too low) back to normal. In scientific jargon, it has an immuno-reconstructive effect. This is a highly valuable peculiarity of Avemar.

Avemar came to be discussed in international journals, obtaining quite favourable attention. International research institutes started to join in the work one after the other. Of course, the really exciting question was whether it was ef-

fective in humans. Tests with Avemar have been underway at clinics in Hungary and elsewhere. Avemar is given under clinical conditions to patients suffering from histologically confirmed malignant tumours. I am really pleased with the results because they prove that this extract is effective not only with animals but also with humans.

The active ingredient is unknown, yet the extract works. If somebody succeeds in determining the active agent, will Avemar be turned into pills?

It's a natural product containing many different molecules which are probably all needed for it to be effective. And, of course, a lot of people around the world are hard at it trying to find out the reason why it works.

It goes without saying that once those molecules have been found (and maybe Avemar contains only a very small amount of them), a small pill will be quite sufficient to do the job. Nevertheless, the shape of a pill and the possible certification as a drug will not in the least make it more effective than it is now. To be sure, it will be easier to swallow. According to our observations, Avemar interacts synergistically with cytostatic agents used by oncologists to fight cancer.

Clinical tests have already commenced. A lot of them have even been evaluated, the results published and presented at international conferences. It is a success story. Avemar treatment has been shown to check or delay the progression of the disease. Tests have proved that it significantly reduces metastasis. Even with patients of a far advanced stage, the survival rate significantly increased in comparison to those who had not been treated with Avemar. The results are so good, indeed, that we are reluctant to talk about them. So far, we have reserved information for pro-

fessional circles.

Within the field of oncology, this is the area where even tiny results amount to great leaps forward. And what's more, the results obtained with Avemar are not at all tiny.

The publication of clinical test results might be one step towards obtaining medical certification. But this, like waging war in the words of a 17th century general, requires three things: money, money and money.

Money we have never had enough. The future seemed nearly hopeless even when we had already had the results in our hands. Where does the name 'Avemar' come? It comes from 'Ave Maria', the opening words of the prayer. At times it seemed we were no longer able to continue. There was no money. It nearly cost me my health. I was giving a lecture at the university when I started to feel so giddy I had to lean against the board. I had all sorts of health problems.



With Ákos Resetár



Receiving the Knighthood of the Holy Sepulchre from Cardinal Paskai

Then I resolved I had had enough. I wouldn't go on like that; it wasn't worth living that way. And I told the Lord Jesus that I would hand this whole work over to him, I would entrust it to Him. There were people whom I admired, who had faith and were able to entrust their lives to the Lord Jesus Christ. So I said I would hand Avemar over to Him. Let His will be done.

Nevertheless, I reserved one way out. If He still wanted me to continue, and let me know it, I said, I would remember His Mother, the Blessed Virgin. This happened one day, and on the subsequent day I told a friend about it. He, in turn, introduced me to an economist called Ákos Resetár. Ákos grasped the significance of the matter in a few minutes. He took all his money, and offered it to me. It had taken, say, two days from the time when I had given the whole thing over to the Lord Jesus until the time when unlimited possibilities for further work were opened.

So we kept working and Ákos kept telling me: 'Máté, if it doesn't come off, will you take me on as a laboratory hand at the university so that I can somehow make a living?'

Have you never thought of selling the licence? I'm sure pharmaceutical companies, even foreign ones, are showing an interest, aren't they?

Yes, a lot of them are showing interest. Though, what would we be doing, Ákos says, if we sold it? We would be bored. At this point, you keep doing it just for the pleasure and excitement in it. But that's not all. This work is so delightful, so full of promise professionally, that selling it off is out of the question.

Here is your greeting card for the year 2002. The front page features angels, while inside is a list of names – doctors and scientists involved in Avemar research. It's an imposing list.

Let me make a point. When I say a lot of money, I mean several hundred millions of dollars, perhaps a billion. If you have money in that region, you can do cancer research. In Hungary, however, it's impossible to raise such an amount, and for this reason we don't think in terms of money. In my view, inspiration, knowledge, and intellectual power are invaluable. What I am getting

together is something that money can't buy. I am organizing an intellectual research base worth a billion dollars.

I'll let you in on a secret. Suppose I want to win over an eminent scientist. How should I go about it? It'd be pointless to approach him and ask how much it'd cost me to hire his institute for Avemar research. At any rate, I wouldn't have enough money to pay. What I do instead is offer him a sample and ask him to have a good look at it. I somehow talk him into having a look. Then, ninety-five out of one hundred call me back and say: 'Come on, this stuff is very good, please let me have some more because I want to work on it, and I want to involve other people,

too.' This is how it works here in Hungary, and also outside the country. Avemar is something you can fall in love with, it is so exciting. If a young molecular biologist in any part of the world, whether in Hungary, Israel, or the United States, starts working on this subject now, he or she stands a fairly good chance of making a seminal discovery and finding the molecule (or group of molecules) responsible for one of the most important regulatory functions in the human immune system. Because this is what Avemar contains.

How would you react if someone else found it?

I am sure it won't be me. It must be someone younger than me. But I confess to being that much of a patriot as to hope it will be a Hungarian. The point is, nevertheless, that science will attain that achievement via Avemar, a Hungarian discovery. I am sure it will.

Could you predict how long it might take?

You know, the work on Avemar is going on while God, the Lord Jesus, and the Virgin Mother keep watchful eyes on it. It all depends on their aid, too. But let's say, a few years – it won't last much longer than that.



Photos by György T. Szénio

I suppose you needed a sound home front to help you keep going over the last few years.

Definitely. My family are my earthly home front. We have already mentioned my wife in connection with Esterin. But, to speak in military terms, she is also my advance guard. For, whenever I face grave difficulties nowadays, I rely on her prayers. She has the gift of



effective prayer. It's not her only strength; she is also good at human relationships, consolation, or encouragement. And she has good looks. We are almost the same age, but luckily people often think she is my daughter. She looks just as young and pretty now as she did years ago, it's only me who's growing old as years pass by. And I also have my children's support. Áron, my son, is already a university student. He is my privy counsellor. My daughter offers me both encouragement and criticism.

As we move into the year 2002, how do you feel?

By nature, I basically tend to melancholy. As it is an innate quality, I am generally in a somewhat romantic, emotional, and a little bit sorrowful mood. But I feel great in

the sense that I know this world can only make headway by getting closer and closer to God. And how do we get closer to God? By striving to develop our full potential; by bringing to fruition whatever we are enabled to accomplish on the basis of our knowledge and abilities. This way we also become dearer to God. I mean, we are always very dear to Him, but, rather, it'll be of benefit to ourselves. For this reason I always take an optimistic view of the future. The future cannot be other than a matter of our coming ever closer to God.

esterin

AVEMAR

MÁTÉ HIDVÉGI, Dr. habil. (b. 1955)

- 1978 – B.Sc., School of Chemical Engineering, Technical University, Budapest
- 1980 – M.Sc., bioengineering, School of Chemical Engineering, Technical University; School of Natural Sciences, Eötvös Loránd University; School of General Medicine, Semmelweis Medical University, Budapest
- 1983 – Doctor, technical biochemistry, Technical University, Budapest
- 1991 – Ph.D., C.Sc., chemistry, Hungarian Academy of Sciences
- 2001 – Dr. habil., chemistry, Budapest University of Technology and Economics

His positions held have been many and various, including

- 1984-92 – Assistant and later Adjunct Professor, Department of Biochemistry and Food Technology, Technical University, Budapest
- 1988-90 – Post-doctoral Fellow, Canadian Grain Commission, Grain Research Laboratory, Winnipeg, Manitoba
- 1991-93 – Director, Nutraceutical Branch, Multiprod Co., Budapest
- 1993-98 – Associate Professor, Department of Biochemistry and Food Technology, School of Chemical Engineering, Technical University, Budapest

- 1994-2001 – Visiting Lecturer, Department of Microbiology, Eötvös Loránd University, Budapest
- 1995 – Visiting Scientific Consultant, Pharmateam Co., Israel
- 1995 – Visiting Lecturer, Budapest University Association
- 1997 – Member of Board of Directors and later President of Biomedicina Co., Budapest
- 2001 – Visiting Lecturer, University of Jewish Studies, Budapest

Dr. Hidvégi has been the recipient of many awards. He is a member of several prestigious scientific organisations in the world of the food and chemical industries and elsewhere. In 2000 he was awarded the Gold Medal of the President of the Republic of Hungary.

Among his numerous publications, Dr. Hidvégi has written about theories of the origin of life, elaborating a mechanism for the biogenesis and evolution of biomembranes.

He has been engaged with the cultural history of the Jews of Hungary, as well as editing a biography of Áron Márton, Roman Catholic Archbishop of Alba Julia, Transylvania.

In 1987 he was among the organisers of the noted Lakitelek Meeting, one of the generators of democratic change in Hungary. He was a founder of the Hungarian Democratic Forum, though he is currently not a member of any political party.