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Speed? What Speed?

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Sebastian Trapp, Matthias Rieger, Ivan Illich

Speed? What speed?

We were sitting together at the large livingroom table of Barbara Duden's house over a good pot of tea, chatting, when a letter from the Netherlands came in. It was an invitation to a conference of the Netherlands Design Institute. We read: 'The theme of the fourth Doors of Perception conference is *speed*. By design or not, we now live in a world dominated by speed — from the TGV to CNN. Speed defines our products, our environments, our way of life, and our imaginations.'

Or does it? We looked at each other. Where was 'speed' to be found by a field biologist, a musicologist or a philosopher? Our imaginations stumbled over this dominance. Could it indeed be as unquestionable as the programme suggested? To find an answer, we went back into history to distance ourselves from modern certainties, to see whether we could find speed outside our speedy society.

Sebastian Trapp

Frederic the Second and the Speed of a Falcon

In the early morning of February the 18th, 1248 the people of Parma in northern Italy attacked the enemy that had besieged them. They bursted out of their town and stormed Victoria, the city the hostile army had built and named so self-assured. They knew that the Emperor who had assailed them and his most important men were not there.

For several months the Parmesians had observed the everyday-life of their hated enemy and they knew, therefore, that the right time to attack was when the Emperor left his camp to hunt with his falcons. The Parmesians were successful; but more than that, they not only defeated their enemy, but spoiled him of nearly everything. They took the crown that he wore on high feast days, a marvellously crafted work of art studded with diamonds and 'as big as a pot', as a contemporary recorded. Furthermore the seal of the King of Sicily fell into their hands, forcing him to issue several decrees in order to prevent its abuse by his opponents. The Carrocio of Cremona, a pompous waggon decorated with flags, was the most famous trophy. The enemies of the town of Cremona, which was allied to the Emperor, could not resist the temptation to take souvenirs; shortly after the victory there was little of it left but the wheels.

The only truly unique and unreplaceable booty of the expedition was not listed in the chronicles. It is a manuscript, specially prepared for the king, wrapped in leather and ornamented with gold and silver, the text embellished with paintings and miniatures. It was seen for the last time twenty years after the battle of Victoria — it is mentioned in a letter written in 1265 — and was never found again.

It is the book, *On the Art of Hunting with Birds*, written by the besieger of Parma himself — Frederic the Second, King of Sicily and Jerusalem, and Emperor of the Roman Empire. Because of other, lesser copies, it is still in print today.

Frederic II was a truly remarkable character. Because of his contact with Arabian scholars and his undogmatic thinking — as shown by his interest in philosophy and the natural sciences — the clergy became very much opposed him. He was excommunicated by Pope Gregory IX as being the personified Antichrist. The biographer of this Pope wrote that 'he (Frederic) turned the title majesty in a hunting-tenancy and, instead of being decorated with arms and laws, became surrounded by dogs and shrieking birds, a hunter instead of an emperor. He traded in the sublime sceptre for the hunting-spear and released the eagle of triumph, setting aside the revenge on his enemies, on hunting birds.'

Only very few could appreciate Frederic's work, which in many respects remains valid to this day. It is a remarkable in being based not on ear-witness and narration but skillful observation and detailed description of the observed. One of his contemporaries wrote: 'Thanks to his extraordinary ability of mental penetration, which was occupied mainly with the understanding of nature, the Emperor composed an opus on the nature and cultivation of birds with which he proved how deeply he was devoted to penetrating investigation.'

Reading the book one cannot help but be deeply impressed with the extensive knowledge Frederic had compiled, not only on the breeding and training of the falcons he used for hunting, but also on their anatomy and their illnesses. But the scope of the huge book is much greater than that: it

covers not only birds of prey, but the life of all different kinds of birds, with detailed insights into their life-cycles, their preferred habitats, their habits including their travels in autumn and wintertime and much, much more. In modern language one would say that he gives a detailed account of the anatomy, behavior and ecology of birds including a taxonomy.

In the fourth book of his *Opus*, Frederic describes the different ways falcons attack a standing crane. He gives his opinion on the reasons for these different tactics: ‘Of those falcons one throws against standing cranes, some fly high, others low and others again in medium altitude. [...] Those, who fly high, straight and fast, do so to get faster to the crane which they choose and be able to swoop down on him harder.

‘Those who fly in a curve and fast, do so to get the best direction of the wind, if they aren’t thrown directly against it.

‘Those who fly slow and in a curve do both because of the wind and also to rouse the cranes which they don’t dare to attack on the ground. [...]

‘Falcons that fly in a moderate altitude and slow do so to rouse the cranes; those who fly in a moderate altitude and fast, do so in order to reach the game as fast as possible, that is, before it flies up and away.’

Perhaps now you begin to get an idea why I talk to you about this old and little known book. After all, this is a conference on speed, not on possible grandfathers of modern natural science, be they ever so fascinating. But Frederic II can serve me as a starting point for the argument that I wish to present here. For this argument it is important that, while he may have lived long ago, he was in many ways a very modern man.

He was modern in not believing what he had not actually witnessed himself. He was modern in his attention to details and in his attempt to understand what he had seen in relation to their setting, the environment in which the observation was made. But in another respect he is very old-fashioned: he never talks about speed.

The descriptions I gave of the ways in which falcons approach the game demonstrate that clearly. He does use the words ‘slow’ and ‘fast’ to describe the falcons, but that is all. Even when he comes to rating his birds, he is only talking about the different ways to fly to the prey: ‘The high flight is the most laudable and praiseworthy one because for those falcons it is easiest to swoop down upon the game. [...] Even if the cranes soar up in a distance, high-flying falcons get to them quick, precisely because they swoop down from great altitude.’

Frederic is using those words, but he never talks or thinks in terms of speed. He never compares one falcon in being faster than the other, let alone the speed of a falcon to the speed of his prey.

Today this is very much possible. In school textbooks one can read that the falcon reaches a speed of up to 200km/h, much faster than all the birds he attacks. But this - being faster than other birds - is not the reason why falcons are successful hunters. Frederic, who devoted much of his life to hunting with birds — too much of his life, many would have said — knew why they are. In fact, the idea of seeing the reason for the falcons success in his extraordinary speed could not occur to him. The reasons are two-fold: the first lies in our culture. The concept of ‘speed’ as we know it is a very recent, a very modern one. The Oxford English Dictionary gives old meanings of speed, which sound strange and alien to us: abundance, success, fortune, lot, assistance, help. Today, if somebody talks about ‘speed’, we understand it to be the property of a process, mostly a movement in time, that — at least in principle — can be measured by an instrument, by a technical device, and

therefore can be compared. This notion of speed — as expressed in units like km/h or r.p.m. — connotes a uniform movement. It is a mechanical speed.

Mechanical speed was invented together with the railroad. Before this people travelled by coach. Not only did they see how strenuous it was for the horses to pull the carriage, but they themselves were shaken up and down so that at the end of the journey animals and passengers alike were exhausted. The movement was a highly irregular one; at every turn, at every obstacle the coach slowed down and after a while the horses tired and became slower.

This irregularity of the movement was seen clearly once the railroad was invented. In 1826 an advocate of the railroad described the movement of a horse as ‘limping and irregular’ and compared it to a locomotive which drives ‘uniformly and fast on its rails, not the least constrained by the speed of its movements’. It didn’t take long until the perception of travellers changed and the uniform and fast movement of the locomotive was seen as natural, whereas the nature of the animals pulling began to appear as dangerously chaotic.

Therefore it is not surprising that as early as 1825 one predicted that ‘soon the nervous man will board a wagon pulled by a locomotive and feel much more secure than he did in the time when he travelled in a coach drawn by four horses, all of them differing in strength and speed, being stubborn and uncontrollable and subject to all the weaknesses of flesh’.

So the kind of speed that we talk about today — and that we talk about at this conference — came into being more than half a millenium after Frederic’s death. He could not talk about speed in the way we do.

The second reason is much more important for me. It lies in the nature of the falcon, It lies in the nature of his prey and in the nature of nature. To talk about the speed of a falcon is an abstraction, an a priori that, at least for some purposes, can be a meaningful one. But it is also a distraction. It distracts from the way in which falcons actually hunt. Comparing the speed of the falcon and the speed of his prey leads us almost inevitably to the image of a race, with the end being the falcon reaching the other bird, and ultimately, the kill.

But a falcon should — and would — never try to outpace his prey. Frederic — who for living in the middle ages couldn’t be distracted by the modern notion of speed — saw that clearly. He knew that there are birds (he gives the example of the bittern) who, if a bird of prey would fly after them, trying to catch them, would throw their excrements towards it. Taking into account how caustic these substances can be, this would be a serious threat that any pursuer would definitely try to avoid.

So Frederic never saw the hunt with birds as being a kind of race. The quotations I gave show that clearly: He always describes the behaviour of the falcon — how it leaves the fist, how it approaches the prey, what it has in mind when choosing a certain route to the crane. He considers where the cranes stand, what they do and which method to attack would be the best for the falcon, the ‘most laudable’ one, as he puts it. In all this flying, curving and circling, the rousing and gaining altitude, the hesitating and swooping down, in all this, there simply is no place for our notion of speed.

When I say, ‘the falcon reaches a speed of up to 200km/h’ then I talk only about a very brief moment, a blink of the eye, in which the falcon approaches something that is compatible with our idea of speed — mechanical speed, that is — the moment where he darts down on the other bird, the wings pressed against its body, unable to steer and therefore moving in a straight line. This is the only moment where our idea of speed is actually applicable, and it is only this moment that is

addressed in the textbook. A second later — when the claws of the falcon hit the other bird, it tumbles, catches itself, tries to gain altitude — ‘speed’ again is without any real importance, even for the human observer. This also holds true for humans, at least in principle. But technology has prolonged enormously the moments of mechanical speed that we experience. We are used to sitting in a train, taking an airplane or driving along a motorway in a car. We are used to the experience of uniform, mechanical speed. So much so, that for us it even makes sense to talk about the ‘speed’ of a pedestrian, even though he may stop all the time, talk to other people or look at the window of a shop. For an object moving as irregular as a pedestrian we manage by talking about ‘average speed’.

The first passengers of the railroad were irritated and confused by the uniform movement of the train, unaccustomed as they were to the sensation of speed within a machine which ridiculed their own rhythms. It took quite a while until people started to get used to places they knew floating by as a landscape, impressions that are much too familiar to us to be noteworthy. We — being transported all the time — are so much used to the kind of speed machines produce that to us ‘speed’ makes perfect sense.

Looking at a falcon high up in the sky or at a kid romping and roving about in the street, I doubt very much that this notion of speed, brought forth by the machines which humans invented, is the idea one should have in mind talking about humans themselves, about ourselves. It doesn’t really matter whether we wish the ‘speed of the human society’ to accelerate or to slow down — as long as we look at humans with speed in mind, we won’t look at humans humanely.

Matthias Rieger

Some remarks about speed from a belly-dance drummer's point of view

When I prepared for this conference about speed, I was somewhat at a loss what to say in front of people who would have come from all over the world by car, train, or plane. This event, so I read in the programme, should give scientists, designers and philosophers a chance 'to rub their brains'. After a while, I decided to ask my drum teacher Mohammed for help. He is a good friend of mine and an experienced musician. For two years now, he has worked hard to introduce me to the art of belly-dance drumming. After the weekly drum lesson, I told him that I was invited by the Netherlands Design Institute to speak about speed in music. I planned to talk there about the introduction of the concept of speed into society.

I wanted to use the example of the metronome to demonstrate how speed came into music. This device was invented in 1812 by the Dutch technician Nicolaus Winkler, who lived in Amsterdam, maybe just around the corner from the place where I speak now. His idea for the little machine, designed to give the right speed for the performance of music, was stolen by a German technician, Nepomuk Maelzel, who patented Winkler's idea in Paris and London, and commercialised it in 1816. The metronome is a technical device that sounds a regular beat at adjustable speeds dictating to the musician the beat he has to follow. The mechanism is based on the principle of the double pendulum, i.e. an oscillating rod with a weight at each end, the upper weight being movable along a scale. A clockwork maintains the motion of the rod and provides the ticking sound every beginner in music knows so well. By adjusting the movable weight along the rod, the pendulum swings, and the ticking can be made slower or faster. An indication in a musical score that some note-value is to be performed at MM (Maelzel's Metronome) = 80, for example, means that the pendulum oscillates from one side to the other (and ticks) eighty times per minute, and the note-value specified with the indication should be performed at the rate of eighty per minute.

Very interesting, Mohammed said. But, what do you think speed could mean in music? What do those people want to talk about? Well, I said, if I have understood them right, they want to figure out how one can reduce speed in society by creating new designs for a slower society. I guess that means something like reducing speed on highways from 120 to 90 kilometers per hour, or music, from 98 beats per minute to 60. I explained to Mohammed that I would try to illustrate the introduction of speed by the example of a discussion in the field of musicology dealing with so-called historical performance practice. This controversy started at the beginning of this century with a renaissance of baroque and classical music. Since then, opinions clash about the interpretation and use of the metronome indications given by the composer. One side in this controversy argues that classical music today is performed too fast. They maintain that this occurs because of the general acceleration of all aspects of modern life since the invention of the railroad. They suggest cutting the indications of the scores by half, from 120 to 60 beats per minute, for example. Let me call them 'slobbies', taking a cue from economists who have created the term for 'slower but better performing people'. Those on the other side insist on performing the music in exactly the tempo indicated in the score; this is the only way to get the 'original' sound.

Ah, Mohammed interrupted me, I understand: Porsche and Beetle drivers reflecting on music. One of the first composers who gave metronome indications was Ludwig van Beethoven. He was a

friend of Maelzel and supported the introduction of the metronome in Germany. But Beethoven was utterly shocked when he listened to the first performances of his music, following his metronome indications. MM did not work. He decided to change them several times. Finally, he came to the conclusion that the use of measured tempo makes no sense in music, and he was not the only composer to do so. But, I asked, didn't we both use a metronome for my first belly-dance drumming performance? It seemed the best way for me to get the exact speed for the dancer. Well, Mohammed replied, at that time you had almost no experience with belly-dancing. Otherwise you would never have agreed to follow a technical device instead of your own certainty of the right, the appropriate, the good way to perform. This certainty arises out of the interaction between the experience of the dancer and your own.

As you can imagine, I was disturbed by Mohammed's remarks. I decided not only to continue my two hours of daily practice but I also wanted to figure out how in the history of western music musicians found the right tempo for their performances.

One week later I called Mohammed and invited him for a cup of tea in order to continue our conversation. He was delighted and promised to come with a friend. Her name was Abla. She was a belly-dancer who had worked with Mohammed for a long time. After they arrived I prepared some good tea, served some sweets and we began to chat. Well, Mohammed, you really set me thinking with your remarks on the metronome and music. I looked into the history of western music because I wanted to figure out how musicians in the past thought about musical tempo. You can hardly imagine my surprise when I found out that until the nineteenth century the musical tempo was always determined by the setting: a special event, a place, a type of work or action. For example, work songs are related to the rhythm of work, the tempo of dance music to the acoustics of the place and, of course, to the mood of the dancers and musicians.

The need for some kind of indication of tempo began to be felt only at the beginning of the seventeenth century. Composers started to use Italian time-words like *adagio* ('at ease'), *allegro* ('cheerful') or *presto* ('quick'). However, these time-words did not refer to a measured time that could be expressed by units per minute. They were at once indications of the mood and spirit or character of the piece. Carl Philip Emanuel Bach wrote in the middle of the eighteenth century in his *Versuch, ber die wahre Art das Clavier zu spielen*: 'The tempo of a piece, which is usually indicated by a variety of familiar Italian terms, is derived from its general mood together with the fastest notes and passages which it includes. Proper attention to these considerations will prevent an *Allegro* from being hurried and an *Adagio* from being dragged.'

I then took a look at the writings on dance and, there again, I found that it simply does not make sense to compare the tempi of different kinds of dance. A sarabande is not faster or slower than a minuet or a waltz. It is simply a sarabande and you should perform it as a sarabande has to be performed. They all have their own character and you cannot simply reduce this to an indicated mechanical time.

The first machine to measure musical tempo was invented in 1698, long after the first pendulum clock had been built in France. This machine, called 'Chronomètre', was invented by the French music theorist Etienne Loulie, and was still famous in the eighteenth century. It was very expensive and almost two metres high, and was only used by few musicians, but mainly music theorists and scientists. Even after Winkler had invented his much smaller and easier to handle version, the metronome was not important for most musicians. It was only later, with the

commercialisation of the metronome by Maelzel and the support of famous composers like Beethoven, that the metronome became the instrument for measuring musical tempo. Although the metronome became common at the beginning of the early nineteenth century, other non-technical ways were found to hint at the right tempo. One was the use of the musician's pulse as a measure. This method was mentioned first in the sixteenth century by an Italian monk named Zaccini, who gave a brief description of measuring time with the pulse in his *Prattica di Musica*. The then famous flautist Johann Joachim Quantz wrote in his *Versuch einer Anleitung die Flöte traverse zu spielen* the following marvelous sentences: 'One would like to make certain of this: take as a basis the pulse of a cheerful and healthy person of hot-tempered and careless disposition or, if one may be permitted to say so, of a person with a choleric temperament, after lunch, towards evening. Then one will have selected the correct one. A depressed, sad, or cold-blooded and sluggish person might take the tempo of every piece somewhat more briskly than his pulsation.'

But all these methods of measuring tempo were mostly used by music pupils or dilettantes, people who had little experience, like young belly-dance drummers today. These were crutches to get an idea of the appropriate tempo. Quantz, who described the method of pulse measurement, also wrote: 'If one has practiced this for some time, then gradually the mind will become so familiar with the tempi that it will not be necessary to consult the pulse.' And Leopold Mozart, at this very same time, went even a step further. For him, knowing the appropriate tempo from one's experience, not by using a technical device, was the main qualification for being a musician.

This is very interesting, Mohammed said to me with a sly smile. Come on, pick up your drum and let's try to reflect on the concept of speed with the help of Ablā. Just play a simple rhythm. Ablā will dance with you. See if you can get the right tempo with the help of the metronome. So I adjusted the metronome at 60 minims per minute and started to play. I immediately recognized that something was wrong. Ablā moved, but not at ease. She really had difficulties following my drumming. Drum and dancer did not harmonise. Stop, Mohammed shouted, you are wrong. Yes I know, I said — it seemed to me that Ablā had started to hate me. Shall I play slower or faster? No, Mohammed replied, you should not play faster or slower, you should play right. But I played exactly 60 minims, I answered. I know, Mohammed said. Following the machine is the best way to play with exactness, which also means to be always wrong. There cannot be a fit between you and Ablā, as long as you look at her from the machine's point of view. If I have understood you right, Matthias, this is exactly what the people at the conference in Amsterdam have in mind when they reflect on speed in society. Try it again without the metronome and just concentrate on Ablā. So I took my drum again and started to play. It was not easy, but after a time and with the help of Ablā I found the right groove, the appropriate tempo. It fitted. I think I got it, I said to Mohammed with some pride in my voice. Yeah, he said, if you continue to practice very hard for ten or twelve years, you might really make it.

It was getting late and Ablā and Mohammed had to go. Mohammed, I said, I still have to speak to those people in Amsterdam. Well, he replied, try to look at it from a belly-dance drummer's point of view.

Ivan Illich

Prisoners of Speed

First let me thank Michiel Schwarz and the organisers of this conference for challenging us to prepare an intervention. My circle of friends in Bremen owe it to your programme that we have examined a neglected subject, the historicity of speed. Let me take you right to the core of the issue by expressing my thanks in old-fashioned English: Michiel, 'God speed thee and thy close!' Milton's words would fit the occasion well. 'To speed' then meant 'to prosper' and not 'to go fast'.

We come here as a trio to give you a sense of the conversation you have provoked among us. Like myself, Matthias Rieger the musicologist, and Sebastian Trapp the limnologist, owe you a debt. We began to focus — each in his domain — on speed as an age-specific phenomenon. The three of us, a historian, a musicologist and a biologist, are by no means alone. Just as speed played no role in the performance of music, falconry and fishery, so commerce, medicine, and architecture, until the seventeenth century, thrived without reference to it. While preparing for this event, each of us became aware of distortions people tend to project on past epochs when they look back with the prejudice that the idea of speed was relevant for Aristotle, Archimedes or Albert the Great.

From the programme of the conference, and from the tone of those lectures I have heard so far, it is obvious that I am addressing people imprisoned in the age of speed. Common sense tells them that some idea of 'space over time' and, more generally, 'process correlated with time', is part and parcel of all cultures. The task incumbent on the three of us, then, is that of shaking your common sense. We know that the idea of speed is assuredly historical. Starting with the late Middle Ages, concern with speed emerged and, step by step, decisively contributed to the era of machines and motors. By 1996, the historical Epoch of Speed lies behind us. During that time, *homo technologicus* had been harried by the experience of speed: from home to factory, through schools and jobs, from work to vacation, forever suffering time-scarcity on a tight schedule run by the clock. Rush shaped the mood.

If today you are still hurried, it is a mark of your privilege, a sign that you have not yet been forced from the culture of time-scarcity into a new period of the megahertz and unemployment. RPM and labour-power are eclipsed by MHz. Transformations in production, switching from employees to computers, from classroom to the Internet, from clerks to credit cards, have not prepared us for this new culture, the age of the megahertz; it is based on the speed of light. In this new epoch, also the age of the constant c , real time processes simulate global omnipresence, and do get us electronically from here to there, but the experience of the in-between, which fed the speed addiction of modern man, is gone.

Here I am with my conviction. Call it an insight or a prejudice or take it as an outsider's possibly fruitful hypothesis: the Age of Speed had a beginning, and we talk about its history because we witness its end. Made into outsiders by this conviction, we address an assembly of professionals who search for methods to incorporate speed into the crucial dimensions of design. In this plush theatre, I witness a conversation on the speed appropriate to human existence; soul searching about the moral demands placed on designers by self-proclaimed 'slobbies' (slow but better working people) who plead for designed deceleration; planners who discuss high and low, fast and slow, endurable and destructive speed. These are the people we are called to inform. They are

professionals, self-imprisoned by the certainty that speed encompasses everything, but needs proper control. It's speed which matters for them, which matters like the term for the man in jail.

As I ruminated on this fixation, I was reminded of a meeting in Oslo last year. A conference was held at the Northern Academy of Science, organized by Nils Christie, the criminologist, the one who writes on Gulags, western style. In all political jurisdictions today, the Gulag now grows at a faster rate than other types of welfare institutions. The meeting brought together the heads of prison administration in fourteen countries, from the general who runs Russian prisons to the Federal Commissioner of Corrections in the USA. The theme: brakes that have to be put on this growth. I listened to three days of country reports, and then led the final day's discussion.

I was impressed by the unanimity among these top wardens. Each report stressed that prison terms do not accomplish what they are meant to do: they do not prevent crime, do not correct tendencies or behaviour, and do not punish to the satisfaction of the prisoner's victims. The chief jailers present insisted that prisons are useless, but all of them nevertheless advocated more funds to improve the job they do.

My task was to make a summation. Professor Christie wanted me to place this conundrum into a historical frame. I happen to know the 'Prince's Mirrors' medieval books about the duties of lords. Christian princes were forbidden to use the tower as a punishment; it was confined to housing people until public execution, torture or mutilation. How should I explain that all modern societies make costly investments in prisons that have proven ineffective in any of the purposes assigned to them? How should I explain the readiness of criminologists, politicians and taxpayers to support the costly job of wardens? How should I understand the reason for the unreasonable certainty that Gulags must be?

To answer these questions, I must first determine the effects of the Gulag. What the Gulag does is counter-productive, if you measure it against the purposes that imprisonment is supposed to serve. The institution obviously does the opposite of what it is meant to do. So, let me examine what the Gulag says, focusing my attention on the Gulag not as a tool but as a sign, a sign for those willing to pay for it, rather than a sign for those held in it — prisoners and wardens. I must come to hear what Gulag says to those who finance it, because they are stuck with the need for it. What each story or news item about the expanding Gulag says to them is: Unlike those in for a term, you are free! and, You must enjoy this freedom! You are free in spite of jumping at the alarm clock and punching in with the time clock, regardless of how long you wait to see the welfare worker for your unemployment benefits. Being outside prison, you have wider educational opportunities. You have options to select among offerings, but only if you translate thirst into a desire for a Coke... or a Pepsi. You have good reasons to forget about water, because what comes from the tap is bad for your health. You enjoy a choice of selections in a range of alternatives much larger than that of the man in for a term. The Gulag tells you, 'Pick your preference!'

In Oslo, I was faced by prison-providers, both experts on the counter-productivity of the Gulag and administrators committed to its quantitative development and qualitative improvement. What kind of assembly could I compare them to? I addressed them as cardinals, but I really thought of Pueblo shamans at a rain dance. The shaman prepares for the yearly dance that must be celebrated in the village, but he also has the authority to declare why the rain does not come, in spite of the ceremony. It does not rain because somebody goofed up in the dance. Sociologists use the rain dance as a technical term for a myth-making ritual, a mythopoeic event that generates belief and confirms social dogma. Max Gluckman speaks of such ceremonies as a social pattern that blinds all

participants — be they priests or faithful — to the contradiction between the rite's alleged purpose and its effects. The liturgy is meant to bring rain, but in fact establishes the need for the dance.

For some years I have looked at the great service institutions of modern societies, not just for what they do, but also for what they say; not as productive agencies, but as myth-making rituals. In my jaundiced view, compulsory school is a rain dance performed for the sake of equality, but in fact provides society with the certainty that school must be. Looking for actual results, one can find the grading of twelve levels of class-specific dropouts. In a similar way, modern penologists claim that imprisonment, even capital punishment, maintains the state's sovereignty, based on the need for an agency to define crime and punish criminals. Today, with my two friends, I want to underline the ritual, ceremonial myth-making function of design.

Here I speak to a very special kind of shaman — not teachers or physicians, not prison officials or transportation engineers, but designers. They do not conduct, rather, they design liturgy. They do not govern the enclaves, but act as advisers to those who construct them. They are not the progeny of shoemakers or masons, but the descendants of a Renaissance brain child, the *disegno*. They are experts in the intentional and reflected integration of sundry artefacts; sources of a new weave that distinguishes the Baroque from the Gothic.

However, designers not only provide the shape of integration, they inevitably spread guiding assumptions about the principles to which the elements of a whole ought to be subservient. Both the cockpit of the car and the humble door handle sell ergonomics; they tickle and attract your seat and your hand. For half a century ergonomics — things designed to fit the body — has been an assumption spread by designers. But the new given you want to put on the agenda, speed, has the power to disembody. It disembodies one's perception of the falcon no less than of the Beethoven sonata. That is what my friends Trapp and Rieger have just tried to explain, and that is also my main point.

For decades, design has peddled speed, most of the time surreptitiously and uncritically. Faster seemed better. Now you want to open a new epoch with the claim that slow speed can be beautiful, and appropriate speed optimum. You want to open an era of intense speed awareness, and promote it by means of design. You want design that hails the postmodern slobbies: slower but better working people who punctiliously protect their appropriate pace.

In the twentieth century, the quest for high speed privileges a minority and consumes the majority's time. Drive-and-Fly is not everyone's business, but every person must get around the distance that fast vehicles create. Aerodynamic streamlining sold industrial models of a chair or coffee pot in 1970. The suggestion of speed meant up-to-date, and high speed seemed as alluring as the latest body fashions. What you now propose goes much further: you assume that everything is drenched in speed, the speed you want to control. This cannot but confirm the omnipresence and omnipotence of an addictive fix.

Yes, it's a new kind of fix, a chimera unrecognized before Galileo Galilei, and hard to believe for a century after his death: the idea of *s/t*, space-over-time. We are here, Trapp, Rieger and I, to stress that neither falconers nor musicians nor philosophers grasped this conflation of space and time. That notion of motion did not fit their world, a world centred on each person, and stretched out before each, to be encompassed step by step. A world in which inns sat at a day's journey; twelve hours had to fit from morn to night, in winter as well as summer; and squares were measured by feet. Experienced expanse cannot stand in a fraction above lived time.

As one of us just said, the experience of speed appalled the first rail passengers. They felt that the train, speeding through the world, required a new word, and adopted 'landscape' for places they saw rushing by the compartment window, without ever setting foot in one. We are told that train schedules brought the minute into society, ticking time for the passenger by the whistle of the engine. Speed replaced rhythm with measured beat. Your current pet project offers to moderate this transfer. My friends and I, however, explore the overlooked speed-less zones of experience. We do not seek an escape from the jail of high speed into a world of less irksome restraints; we ask if and where the shadow of speed can be shirked altogether.

Beethoven's experience with the metronome still holds true, and not only for the three of us. When we sing or listen to live music, speed fades. It neither has a grip on us, nor do we feel the urge to control it. Rhythm takes over. When I read hexameters, I enter their rhythm, because I well know that tempo was assigned to antique poetry only after 1630 by zealous schoolmen. Speed is in conflict with aliveness.

For people like us, speed is a crude example of historical congeries gratuitously attributed to nature. It comes out of a bodyless lust that lies deeper than the major assumptions on which the modern world is built — the need for an appropriate institutional treatment for crime, education, the pursuit of health, or insurance. Today's Pantheon is inhabited by these gods, who govern the modern world. But one finds speed in the dark zone beneath them, where the Greeks placed the Titans, the mighty ones who gave birth to divinities.

As far as speed goes, my friends and I are nihilists. When Galileo proposed this notion to study gravitational attraction on an inclined plane, and Kepler applied it to calculate the movement of heavenly bodies along elliptical trajectories, they recast physics. They astonished their contemporaries as, three hundred years later, quantum physicists astonished their peers. They had to disembody the click of time from the flow of temporality, and detach abstract space from the here and now, where the three of us try to enjoy life with our friends.

I have tried to live as a pilgrim, taking one step after another, entering into my time, living within my horizon, which I hope to reach with the step, the surprising step I take to die.

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