

## A HITCH IN THE CLOCK

Wilkie Collins has been a British author who punctuated his novels with exact indications of time, for instance: "At a quarter to one on a rainy Sunday afternoon in November 1837 ..." (first sentence of "Hide and Seek"). The same applies to his bulky but still extremely readable novel "Armadale" (1866), but in other respects too time plays a great role in this book. One of the Armadales, the two principal characters of this novel, is deeply in love with a charming young lady. He uses to visit her in her home where she lives with her father, a retired army-officer in bad health. He is an enthusiastic amateur clock-maker who likes to show to his young guest the big clock he has constructed himself. This clock is built on the model of the clock at Strasbourg. On top there is the inevitable figure of Father Time, with his everlasting scythe in his hand. At twelve o'clock exactly the time-piece shows the relieving of the guard: a corporal and a private march out to take the place of two other soldiers with due ceremony. But at this supreme moment the pensioned officer has to confess somewhat shamefacedly: "The machinery is a little complicated, and there are defects in it which I am ashamed to say I have not yet succeeded in remedying as I could wish. Sometimes the figures go all wrong". And when he is showing his masterpiece to Armadale things go wrong indeed! There is symbolism in this presentation, for this is where, as the young suitor realizes later, 'his troubles began'.

I detect this same symbolism in historiography and in history teaching. In our clock there is also a hitch, that is to say, our very elaborate chronology does not fit together as well as we like to think. This has been the leading idea in a number of essays in previous issues of this periodical. And I suppose that this "hitch" always has been the cause of trouble and will bring about still more difficulties, especially in history teaching. I am afraid that there exists a gap - a "cultural lag", as I like to call it with a term borrowed from the anthropologists - between the way history (with its own special time-concept) is being presented to pupils in school and the way they experience it

themselves, and this gap is growing wider and wider. For there are several ways to experience time. One of them is of course the exact chronology of the clock and the date. This is no doubt one of the most important elements of modern civilization, and much of our common life is based on it. Along this line we also accept historical chronology as necessary. There is also social time, the moment to do things together. Peasants assemble at dawn to start harvesting, and again when the harvest is over, on the next Sunday to celebrate a harvest festival. To this end no clock is needed. The peasants I lived with in 1943/1944 went home for their dinner in time, although none of them possessed a watch. Many of our appointments are of the same kind: 'we see each other after the meeting for a drink'.

On a rather deeper level we possess also a biological time-sense. It is mainly based on the alternation of light and dark. People who remain locked up for a long time in a dark room, lose their time-sense, they don't know what time it is any longer. A well-known effect of this biological time-sense are the disagreeable sensations caused by flying across the ocean "against the clock". Much of our normal family life is based on this kind of time-sense: getting up and retiring to the bedroom, cooking and eating, and it is a remarkable thing in this context that so much of our modern life is still cyclical.

But still more important is the way we experience time internally or psychologically. Time is "elastic", said Proust, and this we know all very well. Time can creep on unbearably slow, and it can roar on as a mountain torrent. It all depends on what we are living through and on our inner attitude to the occurrences. It is not necessary to give examples, every one of us can procure as many of them as he or she wants. But what it means is that our emotions, our inner self mock at the clock. "Time does not know the clock, the clock does not tell the time", said the French poet Jacques Prévert (in his poem "Sous le soc" in his collection "La pluie et le beau temps"). And this is where, as I said in the beginning, 'our trouble begins', this is where the problems of history teaching begin. For this wide gap between our inner experience of time and the exact time-tables of modern historio-

graphy (including the history textbook) is certainly one of the reasons why the pupils forget so much of what is taught them. Their own time-sense and the arithmetics of chronology do not fit together.

The words of the poet bring me to another chapter, that of the use of the time concept in modern art. And here I have especially in view the time-notions of the motion-picture. The movie is not only a very apt means to express the sentiments and tendencies of our time, it has also influenced in its turn very deeply the mental make-up of modern man. To-day this is more true than ever, since nearly every one spends a very considerable part of his spare time before the television screen. Now from the first the cinema has familiarized us with new ways to handle time. A very close relative of photography and film has been impressionism, as Keith Cohen points out in his valuable book 'Film and Fiction. The Dynamics of Exchange' (Yale University Press, 1979). The impressionist painters were very sensitive to the varying intensities and qualities of light. Light is of the utmost importance to them, not in the first place because it enables us to see things as they are, but as Cohen expresses it, because 'objects are related to one another less by virtue of their individual contoured wholeness than with regard to light and color values they share'.

Now photography and film have from their beginnings used not only naturalist forms of art (because they seem to portray things 'just as they are'), but also and still more impressionist art forms, because as the word "photography" tells us, they "write with light". It all depends on the point of view the photographer or the camera man takes in. But the cinematographer is also able to effectuate something which is not possible for the painter: he can take two or more different points of view, he can literally look at things "from different angles". Every one of us knows what this means because tv-operators are working with three, four, five cameras at a time, all placed in different positions. And already in the first days of cinematographic art film-makers discovered that they could visualize two different sequences of time in the same context.

The most usual form of this is the "flash-back".

It is impossible to overestimate the significance of this revolution and the impact it has had on the modern way of seeing things, that is of looking at them and of appreciating them. Of course literary and other (for instance historical) authors have made a modest use of the flash-back too, but this has always been a rather clumsy affair. The novelist says that he must now ask the reader to move back a few years in time, and the historian announces that in order to understand this or that it has become necessary to take a look at some earlier period. These elaborate and apologizing announcements prove that the authors do not find it easy for themselves and the readers to step out of the time-frame they have set up already. But in a movie or in a tv-production nothing could be easier. It troubles no one when between one scene and the next time suddenly glides backwards or forward without any announcement at all. The captions the early silent films still had like "two years later" or "a month earlier" have disappeared long ago. This means that the producers have understood that the public is perfectly able to handle time in a new way. Now all of us have seen a great many instances of this and we feel fully at ease with it. But still the directors are able to play tricks on us with the help of this instrument. I can cite only one example here, but in my opinion this is the most conspicuous of them all, Sidney Lumet's film "The Screaming". This motion-picture is about a man who for a winter season is hired as a housekeeper in a closed down hotel in the Nevada mountains and who goes to live there with his family. (The principal character is played by Jack Nicholson, and don't miss this film because of his irritating mannerisms!). The management of the hotel warns the new housekeeper that the spot is desolate and that his predecessor has gone mad there. Nevertheless the new incumbent departs and then undergoes the same fate as that other unhappy man. But what we slowly begin to realize is that the present housekeeper and the former one are one and the same person. Past and

present are inextricably blended into one another, it is like the "eternal return" of the ancients. Anyhow, soon the spectator is no longer able to tell whether he is seeing the past or the present. This is what Cohen calls "temporal distortion", and he makes it abundantly clear that for the modern public the time-concept has become discontinuous.

Because of the impact of cinematography modern literature has undergone drastic changes too, especially as regards the time-concept. I shall give only one, but a very telling example. "The colonel took a seat on the pavement of a café, opposite the sea, took out a note-book bound in black canvas, and began to write: 'The colonel took a seat on the pavement of a café, opposite the sea, took out a note-book bound in black canvas, and began to write'." This is the very first sentence of Vladimir Volkoff's gripping novel "La leçon d'anatomie" (1980, with the Algerian war as its subject). This is cinematography pure and simple, and once again past and present become so mixed up that they can no longer be distinguished from each other. In the French "nouveau roman" it is often impossible for the reader to gauge whether it is the past, the present or the future he is dealing with. I give two examples, each of them perfectly illustrating what I mean: J.M.G. de Clézio's "Le déluge" (1966, extremely difficult to read and in my opinion not rewarding), and the most recent novel of Marguerite Duras, "L'amant" (1984, not easy but very rewarding). Authors like these constantly make use of "temporal distortion", it is an integral part of their way to present reality. Here too the time-concept has become discontinuous. Very illuminating is what Duras makes her principal character, a woman, say: "The history of my life does not exist. It does not exist. There never has been a centre. No road, no line". Now I do not venture to guess what all this does to the novel reading and film looking public, including the pupils and history students, but I am sure that it must have a destructive effect on their use of chronology, that is to say on their concept of regular, continuous, arithmetical time, divided into equal parts.

But perhaps, as scientists, as scientifically trained historians, we do not take this threat too seriously. After all chronology as a logical and arithmetical system is a very elaborate, very complete model of time, and nobody can do without it. As a product of reason it seems foolproof against the poetic and intuitive notions I have described. But even as a mathematical model chronology is not so unassailable as it seems. As Ladrière tells us, all our arithmetical thinking is based on a primary intuition, to wit that a unit can be divided, and this is the source of duality. That  $1 + 1 = 2$  cannot be proved, it is a logical tautology:  $1 + 1 = 2$ , because  $1 + 1 = 2$ . Now this intuition is essentially that of the structure of time. Time as whole may be divided into parts, into equal units (Jean Ladrière, *Les limitations internes des formalismes*. Louvain, 1956). With this notion at the back of our mind that our whole time system is based on a proposition that cannot be proved at all, let us now turn to one of the most brilliant intellectual achievements of this century.

Gödel's theorem has been called the greatest discovery in logic ever since Aristotle. Kurt Gödel (1907-1978) published it in 1931, when he was a 25 years old mathematician at Vienna University. It is a proposition written in the special signs and symbols of formal logic to which Gödel added a few of his own, the so-called Gödelian numbers. The non-initiated therefore cannot read this theorem; in addition it consists of a number of propositions and of 46 definitions. The main result is that the science of mathematics is not complete and what is more, never can be made complete. It is not consistent and there exist no possibilities to make it consistent. From this theorem Gödel let follow an important lemma: 'If an arithmetical system is sufficiently extensive to allow that its arithmetics be formalized (this means that they can be translated into the symbolic language of formal logic), then it will become evident that it is impossible to prove (with the means provided by this arithmetical system itself) that it contains no contradictions'. In order to eliminate the inevitable contradictions one has to appeal therefore to a higher arithmetical system that

disposes of ampler means to construct proves. But it follows directly from the theorem that this more ample system also contains contradictions which cannot be eliminated with the means of the system itself. Even the most ample system (from which there is no longer an appeal possible) is not without them. This means that no system is able to solve its own problems and to make itself consistent, or in other words, that there are no foolproof systems. All attempts to dislodge Gödel's theorem have failed; it stands now as it stood then.

Because our chronology is fundamentally a (sufficiently extensive) arithmetical system, it is perfectly possible to formalize it. If the theory of the 19th-century mathematicians had been right that mathematics is a perfectly consistent discipline, than chronology would also be what it pretends to be, an absolutely closed system, containing no contradictions at all, 'with only the eternal return of the same, the ceaseless substitution of the identical by itself' (Ladrière o.c.). And if someone thinks this is too theoretical, it is exactly what the time-line asks us to believe! It is however no theory, but an everyday experience that the chronology is containing certain paradoxes. For instance the different countries all over the world do not have the same clocktime, although our intuition tells us that it is everywhere "now". But still more important is the remarkable fact of the leap-day. The intercalary day of the 29th of February does not know "a year ago" and not "a year from now". Logically there is only blank, but in reality the earth must have been on the same spot in its course around the sun a year ago as it is to-day, February 29. But then we wrote February 28. Or perhaps March the 1st? This means that February 28 and February 29 are the same day, or February 29 and March 1 are the same day. Nobody can tell. But if this is true, then February 28 and March 1 are also the same day. Or February 29 does not exist, never! Of course our intuition, our normal experience tells us that they are all different days, but inside a formalized chronological system it is impossible to prove that they are different. To solve the contradiction we may

appeal to a higher system, for instance the complete solar system, and from there to the Milky Way, the star cluster of which the solar system is a part, and from there again to the universe. But we shall always meet paradoxes and contradictions. There is definitely a hitch in the clock!

What this means for historical education is that our chronological system is no duplicate of time itself; not all our awareness of time has been investigated into it. The chronological system does not make our intuitions superfluous. It could very well be that our intuitive consciousness of time is just as important, perhaps even more important than the time concepts we can learn and acquire. Our consciousness is not filled with actuality, but with temporality: imperceptibly each moment proceeds from a former moment and disappears into the next moment. There is no moment, no present that recapitulates all moments, they are all different, each of them has its own past, its own future. Everything is extended in time. Everything, even the purest form of thought, is historical: it is rooted in man, it is living in time, and eternity is in love with it.

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