

Development

JOSEPH A. SCHUMPETER

With an introduction by Markus C. Becker, Hans Ulrich Eßlinger, Ulrich Hedtke, and Thorbjørn Knudsen. Translated by Markus C. Becker and Thorbjørn Knudsen.*

Introduction

Schumpeter's article *Development*¹ was unknown until Hans Ulrich Eßlinger, a German scholar, found it in 1993. A lucky coincidence led to this rare find. Eßlinger was in pursuit of archival material on Emil

Lederer, a leading German economist who immigrated to the United States in 1933 and became a professor at the New School in New York. As he went through a remote archival box at the State University of New York, Eßlinger found an extraordinary folder that was offered to Lederer in 1932 in honor of his fiftieth birthday. It contained a broad collection of sixty-nine documents, including the only copy of Schumpeter's article *Development*. In this way, Eßlinger's pursuit of archival material on Emil Lederer led to the lucky discovery of Schumpeter's unknown and unpublished article *Development*.

The obscure filing of Schumpeter's article explains why it was not discovered before, but the reader might wonder why Schumpeter did not publish the article himself. While it is impossible to come up with a clear answer, it is not likely that Schumpeter would have considered publishing the article in unaltered form. This would have violated the spirit of giving the

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¹ The original text is in German and entitled "Entwicklung." It was uncovered by Hans Ulrich Eßlinger at its present archival location: SPE XMS Lederer, Box 1, 82.1. Lederer, Emil, Papers, German Intellectual Emigre Collection. M. E. Grenander Department of Special Collection and Archives, University Libraries, State University at Albany, State University of New York. The original text is available at www.schumpeter.info.

article to Lederer as a present. In addition, Schumpeter himself immigrated to the United States in 1932. It is likely Schumpeter wrote *Development* in July 1932, two months before he boarded the ship that should take him to his new home at Harvard. Before Schumpeter got around to considering the publication of *Development*, he might have preferred to express some of the ideas it contained in a new form.

Today, *Development* deserves attention for at least two reasons. First, this article significantly adds to Schumpeter's previous works on a family of issues that are of substantial interest to contemporary economists. Second, this article is of special interest to Schumpeter scholars because it contains a number of important but unpolished ideas that Schumpeter later expressed in more guarded and cautious ways and because it adds to our understanding of how Schumpeter's thinking evolved. The purpose of the present article is solely to highlight the broader relevance of Schumpeter's new article *Development* to contemporary economists. A detailed analysis, sensitive to such issues that are mostly of interest to Schumpeter scholars, is provided in a companion article.

A New Perspective on Schumpeter's Analysis of Economic Development

The article *Development* is far from being one of Schumpeter's more readable efforts. In particular, many potential readers might find the first couple of pages heavy going because Schumpeter begins in the reverse by explaining what he is *not* going to talk about. It is unfortunate if this should prevent the reader in getting far enough to find the issues of substantial interest that are contained in Schumpeter's article. We therefore decided to place the first few pages in an appendix. We also decided to prepare a translation that preserved the

spirit rather than the letter of Schumpeter's original article.²

Development contains a number of topics that contemporary scholars of economic development are likely to find interesting. Apart from the claim that economics is the queen of all sciences, these topics include Schumpeter's conception of the relationship between equilibrium and development; his attempt to distinguish between more or less routine changes and more radical changes by differentiating between growth and development; the role of real novelty in radical changes; his belief that the sources and nature of novelty were very poorly understood; his reflections on the uses, limitations, and abuses, of biological evolutionary theory as a model or metaphor for economic development; and his belief in the central importance of society (or societies) as a factor of influencing both patterns of equilibrium and development. The underlying topic that runs through this list is the problem of explaining real novelty in radical economic changes.

By way of an example from the arts, Schumpeter explains that, when we operate along the lines of causal or teleological explanation of development, no list of identifiable environmental elements suffices to determine uniquely how a particular change actually took place. His chosen example is artistic creation. According to Schumpeter, the attempt to determine the causes of changes in artistic creation is bound to meet with failure because of the appearance of novelty as such in the very essence of things. Consider Florentine painting, says Schumpeter. How do we explain the changes in Florentine painting that happened between the thirteenth and fifteenth

² The original and a translation that preserves the German sentence structure are available at <http://www.schumpeter.info/Edition-Entwicklung.htm> (original) and <http://www.schumpeter.info/Edition-Evolution.htm> (translation).

century? How do we explain the radical change in painting style that happened when Andrea Mantegna, the Italian pioneer of the Renaissance style, created *The Dead Christ*, a painting that uses a remarkable novel technique to represent the Redeemer in a way that appears to “follow” the spectator around the room? According to Schumpeter, the shortened Christ of Mantegna (*The Dead Christ*) must be considered a break of development precisely because it was so immensely novel.

One might wonder if contemporary economists are aware of the problem of novelty as posed by Schumpeter and, if so, whether or not it has been solved satisfactorily. Using innovation in artistic vision as an example, as did Schumpeter, Arrow (1974) argues that our understanding of a particular school of art, and the understanding by the artists themselves, depends on a degree of familiarity with it. A radical new idea is a novel signal, and a novel signal is useless, because it does not modify any probability distribution, explains Arrow. Novelty remains a thorny issue. In *Development*, Schumpeter not only expressed the belief that the sources and nature of novelty were very poorly understood, he also pointed to a fundamental connection between novelty, indeterminacy, and discontinuous change.

Growth and Development

Schumpeter consistently made a distinction between incremental change, which he called growth, and a more fundamental discontinuous change, economic development. Development is a discontinuity of the steady state, a disruption of the static equilibrium leading to an indeterminate future equilibrium. Since his early works, Schumpeter had persistently associated development with discontinuity, but in *Development* Schumpeter adds precision by defining development as a change from one vector norm to another in such a way that

this transition cannot be decomposed into infinitesimal steps. Schumpeter's use of the vector norm is puzzling, however, and it is debateable whether it provides a reasonable definition of economic development. In later writings, Schumpeter continues to use the concept of the norm, but in a more loose sense.

In *Development*, Schumpeter describes the general phenomenon of development as a discontinuity that appears because of the emergence of novel phenomena. Schumpeter further identifies the explanation of novelty as the greatest unmet scientific challenge. Schumpeter clearly views economics as the most useful starting point because of its status as a quantitative science and because of its equilibrium concept. Remarkably, Schumpeter in *Development* further acknowledges the value of both Darwin's and Mendel's theories as explanations of incremental change, but he nevertheless dismisses both theories as explanations of novelty. The reason for Schumpeter's dismissal of both Darwin's and Mendel's theories is noteworthy. They are not dismissed because they are viewed as unscientific. Neither are they dismissed because of their biological content. Both Darwin's and Mendel's theories are simply dismissed, because, according to Schumpeter, they cannot further our understanding of novelty and discontinuity.

The Entrepreneurial Function

Schumpeter's new article *Development* is remarkable because it is the only work in which he reconsiders and adds precision to the definition of economic development provided in *The Theory of Economic Development*, his most important work in economics first published in German in 1911. In the article, *Development*, Schumpeter for the first and only time connects to his early ideas on economic development. The significance of

Schumpeter's early conceptualization of economic development within the broad context of the economy as a whole is to exclude exogenous shocks as explanation for economic development. Novelty must therefore be explained by some factor endogenous to the economic system, or be left to the scientifically untenable principle of uncaused causes. As we know, Schumpeter attributed endogenous change to the creative acts associated with entrepreneurial activity.

Schumpeter portrayed the entrepreneur as a particular type, a leader motivated by the urge to act who performs the entrepreneurial function of carrying out new combinations. Therefore, the entrepreneur is the source of discontinuities; the agent of change whose new combinations introduce turbulence into economic life and thereby disturb the equilibrium of the steady state.

Rather surprisingly, however, *Development* dismisses entrepreneurial activity as an explanation of novelty. Entrepreneurial activity is simply a carrier of the mechanism of change, says Schumpeter. By observing entrepreneurial acts we can obtain a good description of novelty, but novelty itself is a fundamental condition that evades deterministic explanation. *Development's* dismissal of entrepreneurship as the explanation of discontinuities is the rare instance where Schumpeter himself indicates that he is still searching for an entirely adequate explanation of the novel social phenomena he had characterized as discontinuities. But as a close reading of Schumpeter's works through time reveals, the problem of accounting for discontinuities that *Development* identifies is probably a life-long companion of Schumpeter's academic career. Thus, Schumpeter continued to adapt his explanation of discontinuities as well as his concept of development, indicating that he apparently never got it quite right.

Conclusion

The surprising appearance of Schumpeter's new article *Development* is a welcome occasion to reconsider the foundation and structure of his theory of economic development. Not the least because *Development* is a remarkable article that helps in understanding the underlying problem of development that was central to most of Schumpeter's academic works.

Development indicates that Schumpeter's most important problem, the scientific explanation of novelty remained unsolved. According to the article's main line of argument, novelty is an insurmountable limit for deterministic explanations. Schumpeter's problem will, therefore, have to remain unsolved if we hope to achieve such explanation. On the optimistic side, Schumpeter indicates that theoretical advances might be forthcoming that can help a better understanding of the indeterministic world which gives rise to novelty.

The 1980s and 1990s witnessed a dramatic increase in research that looked to Schumpeter's works and ideas for inspiration. The understanding of economic development and its underlying social dynamics is clearly of increasing importance in a world where profound and surprising events appear at increasing speed. Recent advances in agent-based modelling also seem to fulfil Schumpeter's hope of theoretical progress by modelling the emergence of novel phenomena without recourse to sources that are external to the system of interest.³ Schumpeter's unsolved problem was profound, however, and much still remains to be done before it can be put to rest.

³ Axelrod, "Dissemination of Culture"; Farmer and Lo, "Frontiers of Finance"; Tesfatsion, "Structure, Behavior, and Market Power."

Development by Joseph A. Schumpeter⁴

Let us take a look at the paintings of a homogenous cultural system demarcated in space and time. Consider, for example, the paintings of the Florentine thirteenth century. We then face an “imprinted form” whose inner logic can be recognized as a distinct whole, which is remarkably stable.⁵ Florentine paintings of the fifteenth century also show such an “imprinted” form. Even today it is not hard to draw a *Madonna* that anyone could identify as a typical fifteenth century painting. However, this copy would be a different “imprinted” form than that of the original. How do we explain such changes?

Begin by taking the following steps: (1) do not explain change as progress or regress, stop any value-judgment regarding the change that has taken place; (2) do not interpret change solely on the basis of theory, stop interpreting change from a line of development that has not been derived in an empirical way; and (3) avoid the assumption of uncreated and unchangeable structures. Then, it is almost inevitable to operate along the lines of a causal or a teleological explanation of development.

It is commonplace, however, that when you operate along the lines of a causal or a teleological explanation of development you will find that the explanation is underdetermined. No list of identifiable environmental elements will suffice to clearly determine how a particular change actually took place. Rather, artistic creation—as most would probably call it—could have turned out in a different way;

the process could have reacted differently to influences from the environment.

Of all that could be said on this topic, only one thing is of interest here, the appearance of novelty as such always gives rise to indeterminacy. The reason why precisely this kind of indeterminacy must be accepted is not because artistic creation and its meaning belong to a different world than that of the identifiable environmental elements. Neither is it because artistic creation is unrelated to these environmental elements. Inferring artistic contents from changes in wealth or shifts in the social structure would not be a high point of materialist ignorance. Nor should we allow us to take comfort in an unjustified, unscientific belief in determination while nursing the idea that our poor understanding is the only reason why such determination has not yet been revealed.

Indeterminacy must be accepted even though, objectively speaking, determination necessarily always exists. Imagine that artistic creation and its meaning belonged to an entirely different world than that of the environmental elements. Even that would not stop us from developing theory that established a causal relation between elements of the social milieu and artistic contents, at least not if the forms and the norms of the latter would always remain the same. We could then explain the changes that were still possible within the limits of our theory as adaptations to changes, for instance changes of objective social facts, and find propositions describing these adaptations. This is possible even if the causal relations themselves resist *verstehende* perception, and for this reason will always remain unknown.

In developing theory in this way, we would not in any way be in a worse situation than the one we always find ourselves in considering the domain of physical activity,

⁴ Translated by Markus C. Becker and Thorbjørn Knudsen.

⁵ Imprinted form is a translation of “geprägte form.” Schumpeter’s choice of phrase is a reference, not only to an Aristotelian conception (of essence), but also to a famous expression in Goethe’s poem “Urworte.” “Geprägte form” refers to “the unchangeable element of human life, the old Adam as Goethe explained” (Gray, 1966, p. 181).

where a *verstehende* perception is impossible indeed. However, that does not prevent us from linking one class of changes to another class. In particular cases, this might be impossible, but only the experiment can show whether this is really so. As for any particular science, there is no general rule that can help determine whether our specification of causal relations is correct. No philosophical inquiry into the essence of matters could possibly decide this question. Now, what renders this experiment unsuccessful in our case is not only the nature of the subject matter, i.e., the way in which matters conform to laws in the Humanities, or the general unlawfulness of humanistic subject matters, but it is also the appearance of the new interpretation, the appearance of the new technique, and the appearance of novelty as such.

Novelty changes the previously considered matter and substitutes it with another one that reacts differently to changes in the data. In a different sense, it might still be possible to interpret it as an adaptation, but not a passive and determined one. From the perspective of any adaptation-theory, novelty is incomprehensible, not only in the above usage but in every sense.⁶ A concept, such as “creator personality,” is merely a descriptive term that helps identify novelty, but nothing has been explained thereby.

Novelty is the true core of everything that must be accepted as indeterminate in the most profound sense. Novelty always exists together with a wide area of circumstances and processes that, in principle, are deterministic. I attach a certain importance to this distinction because it appears to provide the essential solution to the contrast between

determinism and indeterminism, as far as such a contradistinction makes sense in each particular science. Of course, this does not concern the many problems of determination that the technique of each science has to face even in its “most determinate” fields such as, for example, the case of the bilateral monopoly in economics. Neither does the distinction between determinism and indeterminism concern any questions regarding the concept of the real, observable, object.

Note that changes of the environment nevertheless often remain as causes or conditions. No investigation of historical phenomena can dispense with such environmental changes. In the case of novelty as such, however, we could for once attempt to move beyond trivial dependence and consider novelty as independent of causes and conditions. This makes sense, even when we know that environmental change is not a sufficient condition, not being sure, however, whether it might be a necessary condition for the appearance of the new construction as such. Certain environmental conditions are of course always necessary for the concrete contents of the new construction.

It seems obvious to justify this move beyond trivial dependence from the fact that it is not environmental changes and changes in the data that force new ways—for instance of perception and expression by way of painting. Neither are these changes uniquely determined. The change transmuting one imprinted form into another one must represent a crack, a jerk, or a leap if the problem that I tried to identify should arise. When starting from the old form, the new one must *not* be reachable by adaptation in small steps. Heeding this observation will allow us to give the right meaning to the following questions: How does novelty come about? Why do some people happen to paint in a different way than they learned to and how is this new way of painting transferred to other painters and the public? What is on the one hand the “energy,” if we may say so, and on the other

⁶ The sense of intelligibility that JAS has used above and refers to here is “*verstehende* perception” (*verstehende Erfassung*). The point he makes is that even with a less demanding criterion of intelligibility than understanding, it does not make sense to interpret the new thing as an adaptation. This is the reason why the road to explaining the new thing by way of explaining (incremental) adaptation is barred.

hand the “mechanism” of this process? Note, even if contingent factors express themselves through a “mechanism,” there is no requirement of any concrete external drivers of change. How, in detail, do people change their ways of thinking? What is it that causes them to do so? How does novelty operate? What aspect of novelty is perceived, and what reactions and vibrations does it trigger?

We could ask these questions for each intellectual domain, sciences, religion, etc. that can be characterized by a group of persons. In my opinion, the answers (to these questions) offer a substantial part of what could be called the sociology of these domains. But we do not intend to answer these questions here. Rather, we note the fundamental importance of novel phenomena. Such phenomena are essentially similar in all of the social sciences. We find novel phenomena in the economy as in any other social domain, and there is no difference between novelty in the economy and elsewhere. As usual, however, our vision is sharper in the economic domain than in other domains, because economics is the most quantitative of all sciences. Of *all* sciences, not just of the social sciences. That is of course taken for granted.

The processes described by mechanics can be counted, but they must first be measured. By contrast, there exist fundamental economic phenomena (above all price), which according to their very nature are given as numerical values. These economic phenomena only make sense to the extent that they are numerical values and are related to similar phenomena in a determined numerical relationship. One day, I hope to prove that number and value are chiefly of a fundamental economic nature and originate from the economic domain, not only from a historical point of view but also from a logical one. I further hope to prove that the notion of equilibrium has been transferred from the economic domain to the image of nature, and clearly not vice versa. This obviously makes it much

easier to define the economic expression of novelty in an exact manner—it is essentially identical everywhere, as already mentioned.

This quantitative character, not only of the *science* of the economy but of the economic fact itself, is precisely what has propelled the problem of economic change into the foreground. Despite the objections of those in the scientific community who resist exact thinking, the quantitative character of the economic fact itself has also secured ample space for the consideration of economic change. In spite of the distance separating us from the work of the greatest economists, this problem finds its purest expression in the Walrasian system of interdependent variables. The fundamental economic truth can be formulated as follows: all observable variables seek to place themselves in a certain relation to each other, or in other words, they adapt themselves to changes in data at all times. This holds true with respect to the actual historical facts, and as a logical requirement. We interpret the changes in economic value from the perspective of such adaptation. Nothing but the precise framing of this principle, and ultimately the framing of the empirical observation, allow us to conceive of an end-state in which relationships among economic variables were established in a way such that complete adaptation could be realised. We thus describe by identifying an idealized final result.

It would be easy to show, not only that this is the correct way of deriving the fundamental economic theorem, it is also the method that every economist—except for those engaged in economic sociology—in fact uses and has always used, although with very different degrees of perfection. We want to imagine all the concrete relationships of the concrete data that correspond to the Walrasian system as similar to a matrix whose elements will have to be interpreted as the components of a vector. Below, we summarily refer to these components as the “norm” of the economy.

Now, possible changes can in principle be interpreted as reversible variations from the norm in question, or as irreversible changes of the norm itself. Among the reversible variations we can distinguish between virtual and real variations. This difference has exactly the same methodological importance as in physics, precisely because it is a purely logical category with no particular internal relationship to any realm of facts. Economics, the seedbed of all logic, is the sole exception. Although it is only small reversible changes we control in a similar supreme manner as in physics, we are not powerless in the face of any change of norms. The reason is that the procedure outlined above can be applied in all cases where a change in a norm can be interpreted as an adaptation of the economy to continuous changes in data. In practical terms we are talking about *small* changes in data at each time point. The historical time entering here instead of theoretical time can be treated as if it were theoretical time. Countless examples of the possibility, necessity, and fruitfulness of this procedure could be given, from the times of the classical laws of motion of income and onwards.

Obviously, this procedure fails where a leap-like change of the norm occurs. Where such a leap-like change of the norm follows a leap-like change in the data, we cannot say anything about what will happen in our subject area, except for some trivialities or vague conjectures. From the perspective of the particular sciences, however, we may consider ourselves excused. However, it will shortly become apparent that the matter is not quite the same from a more general standpoint.

We will now leave phenomena involving incremental change. In the case of a jerky change of the norm that erupts spontaneously from the system itself, the same problem is much more serious. An example shows best what we have to think of in the economic domain: A continuous increase in population and wealth immediately explains an equally continuous improvement of roads

and an increase of the mail coaches in circulation in a step-wise adapting manner. But add as many mail coaches as you please, you will never get a railroad in that way. This kind of “novelty” constitutes what we here understand as “development,” which can now be exactly defined as: *transition from one norm of the economic system to another norm in such a way that this transition cannot be decomposed into infinitesimal steps.* In other words: Steps between which there is no strictly continuous path.

I have to admit that I produced a mess when I first termed this notion “development” because the exact form of definition had not yet been found. A similar mess was produced with the term “dynamics,” which I originally used as a synonym. This was a completely misplaced term that has inspired misleading associations. Besides, “dynamics” is also usefully connected to an altogether different set of problems in economics. Only recently have I become aware of the fact that precisely the kind of change defined above is often excluded from the notion of development. In addition, such leap-like change is considered a break with a common understanding of development, i.e., a change that is “lawlike” and predictable, in some sense or another, essentially continuous, and within which each state becomes intelligible when it is based on the previous one. In this meaning, I have heard that the painting of the shortened Christ of Mantegna has been considered a break of development, precisely because it was so immensely novel (in the sense the term is used here).⁷ I mention this

⁷ *Andrea Mantegna* (1430–1506). Italian painter and engraver who was a pioneer in the Renaissance style. The work Schumpeter refers to is *The Dead Christ* (tempera on canvas, 68 × 81) currently located at the museum *Pinacoteca di Brera*, Milan. The dating of the painting is debated, there are several assumptions ranging from the end of the Paduan period of the artist (c. 1457) to 1501. The most remarkable aspect of the painting is the construction of perspective whereby the image of the Redeemer appears to “follow” the spectator around the room through the use of an illusionistic technique.

just to prevent misunderstandings. What is commonly called development, in the sense that was just mentioned, I usually call growth. Growth may, of course, also have a negative increment.

Our definition accomplishes the exact distinction between what is fixed and definite (or at least, in principle, can be calculated exactly) from the perspective of a particular science and what is indeterminate. Such a distinction is accomplished without taking any notice of metaphysics. As opposed to a distinction between determinate and indeterminate phenomena in all other domains of the social sciences, this distinction stands out in the economic domain for two reasons. First, determinate and indeterminate phenomena can be sharply distinguished in economics. Second, it is always possible to confront economic facts by way of numerical measures. It is obvious, however, that this distinction between determinate and indeterminate in the economic domain corresponds to a similar distinction in the other domains and may therefore serve to clarify the nature of the matter for those domains as well.

Moreover, what can be done when we face novel phenomena is everywhere the same, in qualitative terms. There are just gradual differences as to how much can be done, depending on the degree to which the individual domains lend themselves to a precise framing. We can register the appearance of phenomena covered by the notion of development in the sense defined here. We can observe and describe the jerks and leaps in detail. We can estimate their importance to the phenomena of each domain. We can comprehend the effects and counter-effects they trigger, not only descriptively but also theoretically. We can do even more: We can, so to speak, identify the entry points of novelty, not only in the specific case but also generally, and thus build a theory of the mechanisms that are involved. As a by-product, such a general theory yields specific theories of phenomena that would otherwise be

unintelligible. As a rule—and especially in the economic domain—we can therefore also predict a great deal about the phenomena associated with development. We define prediction as a uniquely defined understanding of a state or system characterized by an exactly calculated norm. This calculation is based on the previous norm. Prediction is impossible only in one case, even where such a norm is known with the utmost precision, namely with respect to the kind and intensity of the novelty itself that might be arriving. That is, states can be derived from one another only within the same norm. To be within the same norm means that the earlier state is a variation on the equilibrium of the norm, and the following state only gravitates to precisely this equilibrium.⁸ *But within the scope of any particular science, one norm can never be derived from another, with the sole exception of what we referred to above as growth.*⁹

For this reason follows the fundamental impossibility of extrapolating trends, to return to the economic case. Of course, fitting the simplest possible functional form to a time series by way of the method of least squares or a similar method does not mean anything but a description, in terms of an empirical curve on events that have actually occurred. Today, it is more or less common knowledge that such a procedure is theoretically just about meaningless, even though in specific cases it might well serve a practical purpose. Clearly, the function to be fitted would have to articulate an economic theory or at least to express the movement of a feature acknowledged as theoretically relevant. Estimating the rate of change of the national product could be mentioned as an example of the most general use of this

⁸ Remember that as explained above, for JAS, variation is understood as variation within one norm, and is opposed to changes of the norm itself.

⁹ As in other passages, JAS added underlining on the type-written manuscript by hand.

procedure. We are not interested in such issues here, however. Neither are we interested in the significance of the fact that at separate points of historical time the cross-section of the data points of all time series has to reflect the relationship described by the Walrasian system.¹⁰ In my opinion, those two circumstances represent the major problem of today's theoretical economics. Rather, according to what has been said above, the only thing of interest is that a theory that would generate the formula for a trend is *impossible* because of the nature of the matter and not just because of external interferences that topple our carriage from time to time. To the extent that we are engaged in economic theory, the general aspects of the interdependencies can only be appreciated from an adaptive perspective. Only if we wish to acquire more precise knowledge about specific cases, do we have to appeal to the statistical facts.¹¹ On the other hand, in the analysis of trends, we require the knowledge of a concrete sequence, in order to say anything about that sequence. The precondition, however, is that we manage sufficiently well to statistically separate growth, interference, and development. What we can say about the sequence is moreover valid only within the period of observation, even where remarkable invariances do become evident, as it seems to be the case. Even if an analogous principle to the relativity postulate is possibly valid also in our domain, it does not make up for the decisive point.

To many, it will seem obvious to say that the "in-explicability" of development sketched above might perhaps just be an effect of the imperfect mastering of the facts, and that it will disappear with its perfection. Such an interpretation has obvious

support, due to the fact that the better we master a state and the apprehensible factors of change, the sooner we develop an idea of things to come. Unfortunately, you do not reach the essence of the matter in this way. Even if we were able to sense to the utmost possible extent what will happen, the *triad* "indeterminacy, novelty, leap" remains unconquerable all the same. Both from a rational and a scientific perspective, this holds true even when we can sympathise with the actor, or reconstruct feelings, and put ourselves into the shoes of an actor. Based on a rational science standpoint, you might have the idea to remedy the situation by relegating the subject of the leap to the external interferences. You would then have formally cleaned up your own domain, whatever that might be, from the thing that cannot be mastered. However, the problem would show up again at the place where the element in question has been relegated to. This is the reason why we said that the right to appeal to changes in the data has its limits and ends exactly when we consider the social sciences as a whole, a procedure that leads us into a kind of circle.

Once it has been recognized why these two bearers of hope are deceptive, you realize that previous insights are only dressed in new clothes when it is said that development is a problem, not simply of the facts but of our mental apparatus.¹² This raises a difficulty, not for empirical research but for logic. This circumstance can be demonstrated for any domain you please, as for any domain of the social sciences. The theory of descent is particularly close at hand. Be it of the Darwinian type, with adaptation—which in a wider sense also includes decay—or according to the Mendelian type, with mixtures of constant elements. It always fails

¹⁰ The uncorrected manuscript read "Ziffern aller Zeitreihen eines Systems." JAS deleted by hand "eines Systems" ("of a system").

¹¹ "Statistical" inserted manually by JAS.

¹² The two "bearers of hope" are that it might become easier to explain development with more (knowledge of the) facts, and that the problem might be "solved" by relegating the causes of leaps to the environment.

when it comes to the inaccessibility and indeterminacy of novelty and of the leap, even more so when such a theory of descent acknowledges the leap and names it, e.g. sport or mutation.¹³ It always runs into logical limits, or in other words, the fact that our logic is a logic of the adaptation process which can only deny or dismiss development.¹⁴ And precisely *that* explains what remains unsatisfactory about the matter, as can easily be seen.¹⁵

This is not any different in the domain of physical events. In the individual case, it is exclusively the focus on partial analysis that misleads us in the way that adaptations to a fundamentally unchanged norm are all that we can observe in a scientific manner. In partial analysis, however, the in-escapability of *ceteris paribus* comes to stand out much clearer, as a life jacket that was resisted with a stupidity reserved for us economists. Neither is this any different in everyday thinking.¹⁶ The infinitesimal-method, which excludes the leap, is just a rigorous expression of such everyday thinking. And so invariance, the basic mental instrument of mankind, becomes intelligible. Invariance represents the only essential attribute of God, while all others arise accidentally from very disparate sources.¹⁷ Any general formula for worldly phenomena (Weltformel) that boils down to zero when it handles a function with a large number of almost unknown variables is equally metaphysical, and fulfils just the same function. This is what Mach has done, unknowingly caricaturing himself. We cannot make any clearer what we mean than by pointing to this example.

¹³ "Sport" is the actual term used by Schumpeter (. . . and Darwin).

¹⁴ The theory of descent.

¹⁵ Emphasis added.

¹⁶ This refers to: "adaptations to a fundamentally unchanged norm are all that we can observe in a scientific manner."

¹⁷ JAS refers here to recognizing that all we can do is investigate subsets, that is, always be bound by *ceteris paribus*.

It has now become unnecessary to elaborate on the nature of the connection between indeterminacy, novelty and the jerk or leap. It is clear enough. In its most general contours, it was apparently already clear to Aristotle. Above, I have used the word "impossible." I think it is more correct to speak of a new task. This task obviously involves the logical and mathematical, but, at least if there is any truth in what has been said in the above, eventually economics, the origin of all concepts.¹⁸

Appendix: The Lead-in to Schumpeter's Article

The unpretentious considerations presented here must be understood from the perspective of one particular science. They are not to be interpreted from a philosophical perspective. I mention this to prevent an obvious misunderstanding. If what I have to say turns out to be of interest, it will be so for two reasons. First, it has emerged from a very concrete problem in one particular science. Second, a formally analogous situation can be found in all other sciences. This insight was not established *a priori* but gradually emerged in the process. The same goes for the supposition that the structure of our mental apparatus is the source of the generality of the problem described in more detail below.

The ambiguity of the unfortunate term "development" requires a further preliminary remark. Terms such as "development" or "unfolding" suggest that some identity needs to be maintained on part of the entity that develops.¹⁹ The staying power of this idea is almost as strong as the staying power of ideas in primitive thought. Yet, this very

¹⁸ JAS added "-slehre" to "Wirtschaft" by hand to the type-written manuscript. This alters the meaning of the term from "economy" to "economics."

¹⁹ The German terms for "development" and "unfolding" are "Ent-wicklung" and "Ent-faltung." The meaning of these terms suggests a process of unfolding of an entity, i.e., a process that preserves identity.

idea seems to be the origin of many wrong preconceptions and misguided ideas. There are two more associations with the term “development” that we need to get out of our way: faith in progress and evolutionism. Those two terms are responsible for the scientific discrediting of the term, and not just within the German Historical School. Faith in progress implies a positive valuation of changes. Precisely because it implies valuation, it has no right of place in science. From a sociological perspective it is easy to understand why, in the light of increasing profits, the rising stratum of industrial and commercial capitalists has brought about “faith in progress.” Likewise, it is not difficult to establish why today’s anti-intellectual intellectuals reject the notion of progress and consider its demise—even dahlias wither. It just does not concern us.

“Evolutionism,” on the other hand, is rejected by many because of its actual or alleged alliance with all kinds of materialism. This is a fashion, however, even if there is a logic to it.²⁰ Following that logic, there might well be no strong argument for protesting, *pro futuro* [in time to come]. The argument for protesting against the association of development and materialism, however, is that materialism is a metaphysic like any other metaphysic. We shall have nothing to do with it. An even more important argument is one that scholars in the particular sciences support, in particular historians, ethnologists, and biologists: failure in the details, bending, even disfiguring of facts in the service of evolutionism, and careless acceptance of time series that do not hold up. The strongest argument of them all, however, is the fate awaiting any term being a great success in its time. It becomes the plaything of dilettantism and is elevated to an agent providing the same services as the hypnotic power of opium. That alone is reason enough to reject

evolutionism—no matter how many will happen to join our side in rejecting it. The greatest success an instrument can have is to become a fetish. Then it is done for, however.

There are three more perspectives on the question of development, all of which are purely scientific. The following remarks do not intend to reject those perspectives, they only serve as a help to distinguish our perspective from them. Just like our perspective, they have their origin in the insight that things have come into being, and in the experience that things change. Both of these insights have different reaches with different cultures and even different people. In spite of the common origin, we observe that apart from what has obviously come into being and is changing, additional factors are often included in what is trivially termed “Weltbild.” Time and again attempts are made to also include uncreated and unchangeable structures. Such attempts bear witness of the fear of both the mentioned insights regarding the origin and change of things, and of the element of horror lurking behind even the neatest historical description.

In terms of scientific work, what we can do is first of all to investigate the “process,” i.e., the content of changes that have occurred. More precisely, we can investigate the concrete characteristics of events at different points in historical time and the differences among these characteristics. Often, and mainly in the social realm, the attempt to solve this task is indistinguishable from research guided by a different motive: to identify concrete circumstances, in the best case measurable quantities which can be said, in one way or another, to have “caused” the change. From a logical point of view these two tasks are separated by a deep divide. In popular terms, the second task, identifying causes of change, is often called historical explanation. It leads to an empirical, and in any case nonmetaphysical notion of the meaning of a particular change. Just

²⁰ Linking evolutionism to materialism.

as many different “meanings” can of course be attributed to any change as there are points of view coming from the particular sciences. When we proceed toward an increasing level of abstraction in attributing meaning, we finally arrive at “causal” factors of such generality that we have the impression that our work would (have to) be finished at this point. We then yield to the illusion that we have provided a causal explanation of how phenomena have come into being and have changed. The most naïve expression of such an illusion can be found in most theories of history. Finally, the third perspective on development that belongs here does not add anything new. It is just forward-looking rather than backward-looking. It can therefore apply the notion of goal in a nonmetaphysical way, and for the purposes of a particular science.

Teleological aspects in a narrow sense are not taken into consideration more than in the second perspective on development.²¹

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²¹ The second perspective refers to causality.

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