NEURATH, PROTOCOL SENTENCES
AND THE SPIRIT OF LOGICAL POSITIVISM

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1.

As compared to the enormous literature that developed within Logical Positivism and about this important philosophical movement, the well-known and once so lively controversy on "Protokollsätze" fills a rather modest space ; however, between 1931 and 1934 it was the touchstone of the transition in the Vienna Circle from the logical atomism of Wittgenstein's Tractatus, which had been criticized, to the quest of another kind of basic sentences appropriate to synthetic a posteriori knowledge. In this pretty short story it may be said that Neurath had a leading part, for he influenced Carnap in a definite direction, which was also diverging from Schlick's or Waismann's position. At first sight radicalism was always the very feature of Neurath's trend of thoughts, because of his uncompromising rejection of metaphysical assumptions, terminologies, and other marks of metaphysics in epistemology, but in other respects, as it will be shown, he had views on several philosophical questions which were sound at least because they were moderate. He certainly owed this balance between radicalism and, say, relativism or revisability or flexibility to his formation as a sociologist and an economist. There is no other member of the Vienna Circle and of the Logical Positivist School who ever was as heedful of the historical purview and of the "adventure of ideas" as he was [1].

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[1] But observe all the same that though it is true that Logical Positivism (Empiricism) would study science "sub (quadam) specie aeternitatis" it was never totally loath to situating "The Scientific Enterprise in Historical Perspective" : for this

On the other hand, some of his formulations, when tackled deductively by Carnap, who was already in the thirties a technician and a formalizer of great skill, turned out to be less conclusive than one expected. Thus Neurath embodies a feature that has generally been minor in Logical Positivism, but that has not been absent from it, and one might wonder – although this is not the point – how he would have reacted, from 1945 onwards, upon (or against) the analytical philosophy of the ordinary language and above all upon the tremendous development, first independently of them, then in connection with various theories in formal linguistics, of the philosophy of logic, in the problems and techniques of which Logical Positivism has been gradually absorbed. It may be supposed (by way of example) that, together with other fellow empiricists, he forewarned Carnap against semantics, if not against pragmatics, when the latter set out working in this field [2].

2.

There is a well-known series of articles by Neurath, Carnap and Schlick [3], published in *Erkenntnis*, on protocol sentences and related topics, preceded by papers on physicalism by Neurath and Carnap [4], the whole set of problems culminating conclusively in Carnap's *Logical Syntax of Language* [5]. The question about protocol sentences is an illuminating one to understand the initial aims of Logical Positivism

was the title of B. COHEN's intended contribution to the *International Encyclopedia of Unified Science*, the place of which was taken by KUHN's notorious *The Structure of Scientific Revolutions* (II, 2, 1962, 1970). See also in the same Encyclopedia parts of SANTILLANA's and ZILSEL's *The Development of Rationalism and Empiricism*, and e.g. Vol. V of the *Minnesota Studies in the Philosophy of Science* (Historical and Philosophical Perspectives of Science). It is significant too for the self-critical mindedness of Logical Positivism that FEYERABEND's *Against Method : Outline of an Anarchistic Theory of Knowledge* was accepted in the same studies (Vol. IV, 1970), in which FEIGL and HEMPEL also discuss ideas by Achinstein. Of course it is possible to question the way in which some authors approach the problem of the evolution of scientific theories and concepts (see M. MEYER, espec. chap. IX, 7).

(2) Carnap, (1942), p. VII.
(3) See Bibliography.
(4) See Bibliography. Carnap uses in (Carnap, 1931-1932) terms like "Protokoll-sprache" and "Protokollsätze" already.
(5) Pp. 305, 317 ff., 329.

and the weight of the constraints it was putting upon itself. The authors just mentioned all make a point of defining a starting point for science, that Carnap and Neurath fix on a certain kind of statements reporting simple and immediate observations in the spatio-temporal world – the so-called protocol sentences – whereas Schlick believes that there is something more fundamental than a statement, viz. the fact of the verification or the establishment of facts ("die Konstatierung"), which is related to a feeling of satisfaction. Neurath and Carnap always dismissed this form of psychologism, in favour of some direct or indirect (methodological) behaviorism. Neurath argued – and soon did Carnap so too – that from a logical point of view statements can only be compared with statements – they do record reality, but one would indulge in metaphysics if one tried to grasp the ultimate mechanism of this recording [6].

Now it is from the behaviouristic point of view mentioned above that Neurath insists upon mentioning the name of the observer at least twice (at two different levels) in the protocol. In this case it is obvious that a protocol sentence cannot be an atomic one. And it is from a physicalistic, that is to say from a linguistic point of view that he demands, followed by Carnap, that all empirical terms in protocol sentences should belong to the physicalistic language, which is an intersubjective, public language, and not to a phenomenalistic one, still less to a phenomenological one, that would have no spatio-temporal correlations, that would be outside any impersonal language, and that consequently would require, if they exist, translation rules to be used in science.

A. J. Ayer passes an interesting criticism on the Neurath-Carnapian contention [7] : "The protocol statements which served to describe our experiences are transformed into statements about the condition of our bodies. The place which they filled in our language is left vacant ... Against this I hold that we can deal with the verification of physical statements by allowing protocol statements to keep the part originally assigned to them". Ayer, who has always been strictly faithful to empiricism, is certainly right in asserting an indispensable function to

(6) For similar reasons, i.e. to avoid a mysterious third realm besides language and reality, Gochet (1980, Chap. V, 7) advocates the idea that "There cannot be facts".
(7) Schilpp, p. 280.

protocol sentences or their equivalents in the confirmation process of
non-analytic propositions and it is true that the hesitation over the form
that protocol statements have to take made them depart from their
likely source, namely Russell's notion of knowledge by acquaintance
(or a more general philosophy of the sense-data). But this notion or
others connected with expressions like "the experience lived through"
or "das Gegebene, das Erlebene", have always been unclear and
particularly felt as such by the logical positivists ; it is therefore that
they eventually shunned them and that especially Neurath urged his
colleagues to be careful that the formulation of protocol sentences
should not lead to idealistic or solipsistic or naive realistic conclusions.
In fact in Logical Positivism, syntax and empiricism are so intended
that for methodological reasons the problem of the meaningfulness as a
relation between language and reality is seen as cumbersome and
speculative ([8]). Since that time the problem of meaning has been taken
up by the semanticists for, as Ayer writes, "semantics provides us with
the means of referring to the relationship between sentences and what
they are used to signify" ([9]). From this implicit definition, it can be
clearly seen that the semanticist is not concerned either with the "real"
or "deep" relation (for what does it mean ?) between language, meaning
and the empirically given (even not in the case of the opposition
between surface and deep structure), but with the mechanism of the
conveying of meaning and truth, and this restriction reminds us of the
spirit of Logical Positivism. However, the move from genuine
epistemological Logical Positivism to the Philosophy of Logic and from
the search for adequate and accurate criteria to semantics, has turned
the attention to meaning instead of going on focusing on meaning-
fulness.

There is another point in Neurath's theory that has been exposed to
various attacks, namely his belief that : 1) protocol statements can be
dropped instead of the theory being changed when they appear to be
incompatible with the theory at stake, and that 2) in principle any
empirical sentence in a theory can be chosen and formulated as a
protocol sentence. It is obvious that this twofold belief disregards still
more the initial function granted to protocol sentences as empirical,

(8) For all this, see e.g. Ruytinx, chap. 10, § 6 and chap. 11, § 3.
(9) Ayer, p. 20.

basic and elementary statements. It has often been dubbed conventio-
nalism (it is a kind of decisionism and it is certainly a form of
relativism) and it has been linked up with the vindication of some
coherence theory of truth. Strictly speaking it is difficult to accept
Carnap's defence when he denies [10] that Neurath or he himself ever
were conventionalists sticking to the coherence theory of truth.
Perhaps it would be advisable to set oneself the task of searching after
another, more genuine significance of Neurath's assertions. Although
an ideal language philosopher like Russell, Carnap, Quine, and as an
encyclopedist, he first of all is opposed to any form of dogmatism or
absolutism, as it appears from what he says about the possibility of pure
protocol sentences, about the preciseness of the whole of the
vocabulary, about the way in which science starts – let us quote here a
well-known passage – : "There is no way of taking conclusively
established pure protocol sentences as the starting point of the sciences.
No tabula rasa exists. We are like sailors who must rebuild their ship
on the open sea, never able to dismantle it in dry-dock and to
reconstruct it there out of the best materials. Only the metaphysical
elements can be allowed to vanish without trace. Vague linguistic
conglomerations always remain in one way or another as components
of the ship. If vagueness is diminished at one point, it may well be
increased at another" [11]. Since Neurath admits that the physicalistic
language of the unified science consists of terms of the ordinary
language combined with terms of the language of advanced science [12],
he must be prepared to reject any discrimination between observation
statements and theoretical ones and hence be led to refuse any privilege
to protocol sentences. This position has been criticized by Quine [13],
who gives a behaviouristic definition of the concept of observation
statement in terms of speakers of a common language and of
stimulation and reaction, with which Neurath and Carnap might have
agreed. But notice that the observation statement so defined does not
necessarily become incorrigible or infallible either. On the other hand
Carnap (when he recognizes that a scientific system is true only with

(10) Schilpp, p. 864.
(11) Neurath (1932-1933). See Ayer, p. 201.
(12) Neurath, op.cit., p. 200.
(13) See Gochet (1978), p. 53.

respect to a definite scientific group) [14], Ayer (even when he shows that "the intersubjective physical language refers to the experiences of anyone you please") [15] and Quine (as stated above), all join with Neurath, though not altogether to the same extent, when he writes that "Protocol sentences are factual sentences like the others, containing names of persons *or names of groups of people* linked in specific ways with other terms which are themselves also taken from the *universal-slang*" [16]. In contemporary studies on the science policy and on the sociology of science, emphasis is also laid on the generality of science as grounded, at least partially, on the common language (values, ideology, expressions, interests) of a community.

Perhaps we can now reach the full significance of Neurath's twofold contention.Let us quote him once again : "There are no sentences in the universal-slang which one may characterize as more 'primitive' than any others. All are of equal primitiveness. Personal nouns, words denoting perceptions, and others words of little primitiveness occur in all factual sentences, or, at least, in the hypotheses from which they derive. All of which means that there are neither primitive protocol sentences nor sentences which are not subject to verification" [17]. These words may sound very acceptable to our contemporaries. The bearing of them is to be situated, according to us, in the context of a non-foundationalist philosophy. Not only is there, for a logical positivist, no philosophy outside logical positivism to found the latter, and nothing outside science to found it — a well-known thesis which was endorsed and reinforced by the logic of science and by encyclopedism —, but Neurath's tolerance as to which sentences are verified and which are verifying in a scientific system meets on at least one point the requirements of modern science as consisting of open systems ; and, further, he writes "Nie ist auch nur ein Gebiet der Wissenschaft abgeschlossen, wie dies Schlick meint, alle hängen mit allen zusammen und partizipieren irgendwie an der allgemeinen Unab-geschlossenheit und Unbestimmtheit" [18]. This important passage and the former one can be favourably compared with Gochet's remarks

(14) Carnap (1932-1933a), p. 180.
(15) Schilpp, p. 280.
(16) Neurath, *op.cit.*, p. 207. Our italics.
(17) Neurath, *op.cit.*, p. 205.
(18) Neurath (1934), p. 358.

concerning Quine's non-foundationalist philosophy : "Il ne s'agit pas de remplacer l'idée de dépendance, entre propositions primitives et propositions dérivées par l'idée d'indépendance mais par l'idée d'interdépendance" [19]. Lastly let us add that in the same article Neurath emphasizes the fact that, owing to the possibility of error or of revision, there is no proposition that is definitively either synthetic or analytic [20].

3.

In another series of writings by Neurath such as the book *Empirische Soziologie*, the vivid article *Soziologie im Physikalismus*, the short monograph *Unified Science as Encyclopedic Integration* and the longer *Foundations of the Social Sciences*, the play of the anti-metaphysical, and physicalistic radicalism [21] on the one hand and of readiness of mind on the other is plain.

Physicalism is no cure-all for it is unprofitable if it is uncritical (magic, astrology) [22], neither is logic, for inductive decisions in this or that field are no matter of logic, but are characteristic "of certain human groups or of whole ages" [23]. This kind of process may be working positively and normally for a more or less extended period of time, but in certain circumstances the social pressure, financial powers which are unfavourably inclined towards a certain type of scientific research, the prevailing social, political and economic order can hamper successful investigation (in the sociological research and in other fields) [24]. Of course the proponents of unified science cannot be tolerant of speculative theories or doctrines, but as democrats they "do not harass the supporters of these doctrines" [24]. Was Neurath a

(19) Gochet (1978), p. 34.
(20) Neurath (1934).
(21) Perhaps it is not useless to remind that physicalism has never really been conceived of by Neurath or any logical positivist as the identification of all sciences with physics in the narrower sense of the word.
(22) Neurath (1931-1932), in Ayer, p. 316. Neurath (1938), p. 5.
(23) Neurath (1931-1932), in Ayer, p. 299.
(24) Neurath (1931-1932), in Ayer, pp. 315-316. We would like remarking that even if it seems that in the last years more emphasis has been laid on the diversity in science than on its unity or possible unification, there cannot be spoken of science without stating and using some "demarcation criteria" to distinguish science from other kinds of talk.

marxist? Certainly not in the dogmatic sense this word has taken later on. In fact, his admiration for marxism is nothing else but admiration for a kind of empirical sociology, that "endeavours to establish correlations between the social situation and the behaviour of entire classes", a sociology which is a thorough preparation to "social behaviorism" already, and of which he believes it is "the most productive sociology of the present day" [25]. However, in the social sciences and in the historical biography more than elsewhere, physicalism must remain compatible with pluralism [26], i.e. with a diversity of ways of approach to the social reality to be studied. Moreover "sociology is concerned for the most part with correlations valid for limited periods of time" [27], that is to say there are no laws in sociology which are comparable to those of physics. Neurath was properly aware of the connections which exist between science, language, ethics, politics and ideology, when writing that "altering our scientific language is cohesive with altering our social and private life" [28]. Logical positivist neutrality with respect to life and politics has *never* been the case, just as disengagement *never* existed in Comte's positivism or in Mill's utilitarianism, but it is true that the logical positivists would refrain from indulging in confusions arising from the mixed use of normative, emotive, formal and factual language. It is according to this spirit that the following declarations by Carnap have to be understood : "Neurath and I have criticized the existing order of society as unreasonable and have demanded that it should be reformed on the basis of scientific insights and careful planning in such a way that the needs and aspirations of all would be satisfied as far as possible ; this attitude is the core of our scientific humanism" [29] and "Most of us, myself included, were socialists" [30].

For Neurath there is no true scientific system that could be distinct from that which is accepted at the time at which one states the question of determining this kind of truth. He says that science, even unified science or science in a process of unification, cannot anticipate its own

(25) Neurath (1931-1932), in Ayer, p. 306.
(26) Neurath (1944), p. 14.
(27) Neurath (1931-1932), in Ayer, p. 312.
(28) Neurath (1944), p. 46.
(29) Schilpp, p. 867.
(30) Schilpp, p. 23.

future state [31]. It would be imprudent to replace *the* reality by *the* physicalistic system [32] : so an Encyclopedia (of unified science), as an endeavour to a maximum of co-ordination, together with accepted incompleteness, and encyclopedism as an attitude and a program, are the only alternative to what he calls pseudo-rationalism, which amounts to believing that the so-called natural sciences can get rid of any imprecision [33]. The social sciences often use "metaphorical sentences" which are censured if and only if they cannot be transformed into physicalistic statements, in order to verify them [34] ; otherwise they may be admitted and have a positive function [35].

It is the whole of non-formal science which Neurath conceives of as starting *not* with "simple basic assertions, atomic ideas, sense-data ..., i.e. something elementary, primitive and poor", but on the contrary as starting *with* "a full lump of irregularities and indistinctness, as our daily speech offers it" [36]. Protocol terms and observation terms are rich just as far as they are indistinct. Vaguely defined assumptions obtain in empiricist arguments [37], "faint and blurred expressions with rather vague outlines" are unavoidable, but multivocalness can more or less easily be avoided [38].

Formed as a social scientist instead of being a physicist or a mathematician, Neurath occupied a position apart in Logical Positivism, from which he was able to take up a point of view that worked stimulating for a certain number of years, and that took account of the actual status and development of science, providing this philosophical movement with a spirit that has been gradually laid aside in favour of much more technical work.

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(31) Neurath (1931-1932), in Ayer, p. 286.
(32) Neurath (1931-1932), in Ayer, p. 292.
(33) Neurath (1938), pp. 20, 21, 23.
(34) Neurath (1944), p. 4.
(35) For recent views on the process of metaphorization in science, see Meyer, Chap. IX, 10.
(36) Neurath (1944), p. 18.
(37) Neurath (1944), p. 3.
(38) Neurath (1944), p. 6. Also Gochet observes (Gochet, 1978, p. 54), in another context, but in accordance with this acceptance, that "la relativité et l'imprécision ne sont pas nécessairement des maux, la confusion, au contraire, en est toujours un".

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