there is no vowel between the first and the last n in grunnan and
funnen as the verse is recited by a man speaking the riksmål of the
East. The words are nevertheless dissyllabic.

A phonetician would perhaps object that the feeling of having
dissyllabic or trisyllabic words in grunn and bunna is an illusion,
and that there is in reality only a long nasal to be heard in these
tone, e.g. binna (written binn) "the simple form having the
short vowel, as in hinn "a slab of (timber)" and hinn "she" (written hun). But
the nasals in question are part of quite another series of distinctions.

Let us consider the following examples:

funn "a find"
funnen "found"

funns perf. pl. of the preceding word,
funna "they found", now obsolete pl. of the preterite of the
verb funna "to find"
funnen "the finds", pl. of the noun with the definite article.

In the first two cases there is no vowel between the first and the
last of the n's, but still the words are different. And in the last three
words there is no vowel between the first and the last n. The difference
between the words is found in the n. The first word is pronounced
with an ordinary geminated n between an accented vowel and an
unaccented one, the second is pronounced funna with the first part
of the geminate long. The last word is a trisyllabic fungna.

It might perhaps be objected that the difference in these words
is due to the different tone which is found in some of them. funn has
the tone called simple and funnen the tone called double or compound.
But the first and the second funna have the same tone and still they
are distinctly different. In fact there are cases where words with
geminates and triplicates have exactly the same tone. Take the fol-
lowing articulations: b+a+n+a. These articulations may represent
three different words with three different meanings in spite of the
fact that they all have the double tone.

bu'na (written bune) is a verb meaning "to have its origin in,
to be founded on"

bu'na is the pl. of the perf. pt. of the verb "to bind" and is
written bunade.

bu'npna is the pl. with the definite article of the word bunne
"bottom".

In the monosyllabic neuter nouns ending in a long n (written
mm or -nd) the difference between an ordinary geminated n and a
triplicate serves to distinguish the singular of the noun with the
affixed definite article from the plural with the same article, both
forms having the simple tone, e.g. binna (written bindet) "the
bandage"; bunna (written bundet) "the ribbon"; bunna (bundene);
funna (funntet) "the find"; fungna (fungneta); punna (pundet) "the
point"; fungna (funneta) "the mind"; sunna (sunnta) "the
sound"; sunna (sundene) etc.

In the Gaelic spoken in Barra in the Hebrides which has just been
described by a young Norwegian linguist, Mr Borgström (in N.T.S.,
in 1932 some of the fundamental notions of phonology, especially
those established by the Prague group of scholars, have been
submitted to criticism, and phonologists have, as a rule, profited
by it. During these years, especially, scholars of the English
speaking countries have contributed to the general phonological
discussion. I mean especially the work done in England by Prof. J. R. Firth,
and by Prof. W. F. Twadell in the United States of America.
Both scholars may be said to follow, in some way, the traditions
established in their respective countries by Prof. D. Jones and
Prof. Edward Sapir. I use the cautious phrase "in some way" what
I mean is that there is a considerable resemblance between the
efforts of Prof. Firth and Prof. Twadell on the one hand and
those of the two esteemed pioneers of phonology on the other hand
in so far that the former two scholars arrive, just as Prof. Jones
and Prof. Sapir did before them, by their own methods, at results
on the one hand and those of the two esteemed pioneers of phonology on the other hand
in so far that the former two scholars arrive, just as Prof. Jones
and Prof. Sapir did before them, by their own methods, at results
which at first sight appear very different from those arrived at by
the Prague scholars, but which, in the long run, appear to have
more in common with them than might be expected.

As limits of time do not permit of a discussion of both these aspects
of the phonemic theory, I must confine myself to one of them only.
It is due to technical reasons only that I failed to choose the
theory
of Prof. Firth for my theme; an exposition of his starting-point would take much more time than in the case of Prof. Twaddell. I propose, therefore, to deal with the main theses of the American scholar.

Prof. Twaddell's comprehensive treatise gives evidence of the penetrating insight of its author and of the keen realization of the problems involved. Unfortunately, the highly abstract style is apt to deter a number of readers.

Prof. Twaddell subjects the existing definitions of the phoneme to his criticism. All previous definitions, he says, have agreed in describing it as a reality of some sort. One group of scholars defined the phoneme as a mental reality, another group as a physical one. The author rejects, justly I think, both categories of definitions. According to the mentalistic (i.e., psycholinguistic) definitions, phonemes should be considered as phonics images (Lautvorstellungen, images acoustico-motrices). But such units, as Prof. Twaddell justly urges, are inaccessible to linguistic study. Phonemes should be defined by linguistic terms. And this is exactly what the scholars of the other group try to accomplish by defining phonemes as physical realities. This, again, may be done in two ways. Considering that any phoneme may be manifested in two or more sounds, two sub-definitions are possible: a phoneme is equal either to a sound feature present in, and therefore common to, all such sounds, or simply to the sum of such sounds. The first subalternative is rejected by Prof. Twaddell as unobservable by experimental means. According to the second subalternative, a phoneme is a given language, which are related in character and are such that no one of them ever occurs in the same surroundings as any other in words. In determining phonemes, therefore, it is necessary, as Prof. Twaddell puts it, to establish a hiatus of organo-genetic similarity which sets off all members of one such family of sounds from the members of all other such families. And this is the very point where Prof. Twaddell finds this definition inadequate. He urges that the establishing of such hiatuses is sometimes very difficult, and even arbitrary.

We cannot enter into the details of this criticism here; it is Prof. Twaddell's own definition which concerns us in the first place. The term "phoneme," he says, has proved eminently useful to linguistic study, and therefore should be defined properly. But the attempts to define it as a reality of some sort have not been successful. Maybe, he thinks, it is even unnecessary to associate the term with any reality. Let us quote the author's own words: "The purposes to which the term may be put in our discipline are served equally well or better by regarding the phoneme as an abstractive, fictitious unit" (p. 33).

A straightforward and radical declaration like this may seem surprising; but an examination of some details of Prof. Twaddell's exposition reveals the fact that his views are by no means so contrary to the phonematic theories hitherto formulated as might be thought. Let us proceed to that examination.

Of utmost importance is Prof. Twaddell's distinction between utterances and forms: "If I say: 'That's a fine lamp,' 'Won't you light the lamp?' 'Where's your old lamp?' each of these acts of speech constitutes an utterance... As a student of language I abstract from utterance-events certain fractions which I assume to be substantially recurrent, and (in the example above) I call that abstraction the form lamp. The utterance occurs, it is speech, 'parole'; the form exists, so to say, it is a part of a language." Thus says Prof. Twaddell (p. 40). Let us add that in the next lines he emphasizes the distinction between forms and utterance-events by stating his use of the word "phonetic" for characterizing relations of utterance-events, and of "phonological" for characterizing relations of forms.

A double inference may be deduced from the above distinction. Firstly, that what Prof. Twaddell calls "abstractive, fictitious" should by no means be identified with "unreal, non-existent", as the meanings of those words are often understood. Prof. Twaddell emphasizes the distinction langue:parole; the former is an abstraction, it is true, but it possesses some existence (Prof. Twaddell himself says: "the utterance occurs, the form exists"), and the same, as he adds, holds true in the case with the phoneme. The distinction is based on Prof. Twaddell's use of the terms "phonological" and "phonetic" for the respective spheres of langue and paroles. This use is of fundamental importance. Phonologists of the Prague group will certainly agree with this terminological distribution, as established by Prof. Twaddell. It is fairly well known that the distinction between langue and parole has always belonged to the store of the linguistic ideas and methods and that they have several times been taken to task for it. The idea that phoneme is a fact of langue which becomes manifested in parole by means of a number of sounds is, even if not explicitly stated, implicitly present in most of their works. May I be allowed to quote a few lines of my own dating from 1932 (Charisteria Gt. Mathesis obitata, Prague, 1932, p. 33): "It appears that the qualification of phoneme by the term of symbolically utilizable counter, complements best with modern considerations of the substance and purpose of language which date from F. De Saussure's qualification of linguistics as a 'science sémiologique'. The counters, however, become manifested in actual speech only.... Thus a phoneme may be defined as a symbolically utilizable counter which becomes manifested in actual speech by means of (two or more) sounds which, etc., etc." In the following year (1933) Prof. A. Artymiów delivered a lecture in the Prague Linguistic Circle in which he expressly denoted phonemes as facts of langue and sounds as facts of parole. To sum up, the second inference mentioned above is that there appears to be a concordance between Prof. Twaddell...
and the Prague school in so far as their starting-points may be denoted as similar, if not identical.

It should be mentioned, by the way, that Prof. Twaddell rather unjustly enclosed functionalistic definitions of the phoneme in that chapter of his book which deals with psychologistic deduction. In functionalistic definitions, he says (p. 15), utilization of phonemes in distinguishing words and sentences is usually, "either explicitly or by implication, related to the intention of the speaker". As a proof of this, one quotation from my own paper and three from those of Prof. V. Mathesius are adduced, but I am absolutely unable to find the slightest allusion in them, be it implicit or explicit, to the intention of the speaker. At the end of the chapter mentioned (p. 15), Prof. Twaddell quotes the definition of the phoneme comprised in the "Projet de terminologie phonologique standardisée" (Travaux du Cercle linguistique de Prague, iv, 311) with the following remark: "The Cercle linguistique de Prague, which in 1929 defined phonemes as 'images acoustico-motrices', in 1931 shifts the emphasis to a functional characterization. But a careful examination of the Projet reveals clearly the fact that the change did not consist in shifting emphasis from one part of the theory to another, but in the complete elimination of the last remnants of psychologistic terminology.

Let us take up again the distinction langue : parole. Langue, of course, can be studied only through the medium of parole, i.e. as it is manifested in actual speech utterances. Such must necessarily be also Prof. Twaddell's procedure. As he says, "we observe the utterance events which correspond to a form; we study the abstracted form which corresponds to utterance-fractions" (p. 40).

As to the utterance-events, they are always phonetically different (for no two events can be exactly alike). But some of the utterance-events may be phonetically similarly alike, that is if they evoke similar responses in similar social situations (more roughly: if their "meanings" appear to be the same). To such utterance-events correspond what Prof. Twaddell calls "phonologically alike forms". One literal quotation will make Prof. Twaddell's attitude still clearer: "The form is all that is similar and nothing that is different in the various events; thus only significant differences are phonologically relevant" (p. 41). It should be noted that this statement again reveals the so far absolute parallelism of attitudes between Prof. Twaddell and the Prague school: the leading idea of the latter has always been that of distinguishing significantly (or, functionally) relevant phonic facts from the irrelevant ones.

To return to Prof. Twaddell's theory: forms that are not phonetically alike are phonologically different. Pairs of phonologically different forms, however, may exhibit various grades of differences. And in any language groups of forms (or, as Prof. Twaddell calls them, classes of forms) may be ascertained which are minimally phonologically different, such as American English bet : bat : bat. Terms of such minimum differences in such classes of forms are called by Prof. Twaddell micro-phonemes. It should, however, be borne in mind that, according to Prof. Twaddell, terms of these differences are micro-phonemes only qua terms of such differences, and only qua terms of differences of the single class concerned. Thus e.g. i of the form bet is, as Prof. Twaddell says, not a micro-phoneme per se, but only in comparison with i of the form bit, with e of the form bat, etc., and, in addition to this, only in so far as we keep within the limits of the class bet : bat : bat. For other classes of forms, other micro-phonemes must be established. Thus, e.g., for the class seat : sit : sate : sat. The terms of this class, however, should be regarded as similarly ordered in comparison with the terms of the b-t-class discussed above.

Let us consider the following classes of forms:

- bill nap
- fill gnat
- kill knack
- bill nab

These classes again are similarly ordered (the respective micro-phonemes are printed in italics), because, as Prof. Twaddell puts it, "the phonological differences among the forms of the two classes correspond to a constantly recurring articular set of differences among the phonetic events, and those articular differences are similar and one-to-one..." (p. 47). Then Prof. Twaddell proceeds to a higher synthesis and defines the sum of similarly ordered terms of similar mimics as "the sum of the respective micro-phonemes" as a macro-phoneme. To give an example: a macro-phoneme p in American English comprises all micro-phonemes p from such classes as the two schematized above and from a great many other classes, such as tapper : tatter : tacker : tabber : pair : tear : care : bear, etc., etc. What Prof. Twaddell particularly emphasizes is again the relational character of macro-phonemes, if we may call it so. The macro-phoneme p, for example, is for him "the sum of all those phonological differentiae which correspond to a labial articulation as opposed to alveolar or palatal-velar, a voiceless articulation as opposed to voiced, a stop articulation as opposed to fricative".

If we have up to the present more than once pointed out the congruence between the attitudes of Prof. Twaddell and the Prague phonologists, now we have to face the fact that the final results of their procedures are rather different. It may have become clear from the above comments that the difference between the macro-phoneme, as defined by Prof. Twaddell, and the phoneme of the Prague group is not reducible to an opposition, "an abstractional
fiction: a reality of some sort". Both the macro-phoneme and the "Prague phoneme", that is to say, are of like character in this respect—either both of them are abstractive fictions or both of them possess some reality, such at least as may be attributed to abstractions. The real difference between the two conceptions must be stated in this way: the macro-phoneme is a relational unit, the phoneme of the Prague group is, to use Prof. Twaddei's term, a constituent element of forms. Which of the two conceptions conforms better with facts?

To find an answer to this question, the character of units established by Prof. Twaddei must be discussed at some length. Criticism of such purely relational units might begin by stating that a relation cannot be imagined where there is nothing to relate, i.e. that even Prof. Twaddei's way of defining phonemes postulates units which are constituents of forms. But, in order to be just to the procedure developed by Prof. Twaddei, we shall begin with the micro-phonemes as he did. Prof. Twaddei states that the units he calls micro-phonemes are not to be considered as micro-phonemes per se (i.e. that they, too, are no constituents of forms), but only qua terms of minimum phonological differences, and only qua terms of differences within a single class of forms. Let us admit this for a moment. The point is, what kind of conclusions may be drawn from such a definition? Prof. Twaddei's inferences do not appear convincing. His establishing of classes of forms which are minimally phonologically different suggests an idea that in the form like till, t is a micro-phoneme so long as the form is opposed to forms like pill, bill, kill. If, however, the form till is opposed to members of another class, say to forms fell, tall, tool, t is no longer a micro-phoneme, and it is i which is entrusted with that function; it is deprived of it, however, as soon as the form till becomes opposed to forms of a class tin, tip, tick, when the micro-phonemic function is allotted to i. If this were so, langue would have to be considered as a sum of classes of forms, such as

(A)  
\[
\begin{array}{ccc}
\text{pill} & \text{fell} & \text{tin} \\
\text{till} & \text{till} & \text{till} \\
\text{kill} & \text{tall} & \text{tip}
\end{array}
\]

In reality, however, it is a complicated network of such classes. The mutual relations of forms in langue might, in this case, be roughly schematized as follows:

(B)  
\[
\begin{array}{ccc}
\text{pill} & \text{tip} \\
\text{tell} & \text{till} & \text{tall} \\
\text{tin} & \text{kill}
\end{array}
\]

It should be noted that distinctions of this kind (B) are fairly familiar to any speaker of the language: he wants his forms to be "understood" by his fellows and shifting of any of his forms in any of such directions as are indicated above might be a source of misunderstandings. The first classes (A), however, are artificial groups which must be established ad hoc by the speaker, if he needs for this or any other reason to establish them (as may be the case in rhyming, compiling dictionaries, solving puzzles, etc.).

From the second scheme (B) the following inference may be deduced: A form like till is constantly a member of three classes of forms at a time. Therefore, any of the three parts of that form is at any moment opposed to a part of some other form. Again, all the three parts are continually, without any interruption, functioning as micro-phonemes, and they are functioning so at the same time. Thus any form may be said to exhibit a certain number of stable micro-phonemes, and it is owing to their stability that micro-phonemes can and must be regarded as constituents of forms. Cases of oppositions like the English tall: all; or: tore (without orthographical disguise, bill: at: 3:1: 7:5) reveal this constituent function of micro-phonemes in an even more striking way. And, if micro-phonemes are constituent elements of forms, the same must be true of macro-phonemes. In proceeding from micro-phonemes to macro-phonemes, a methodical device proposed by Prof. Twaddei, viz. examination of similarly ordered forms, may be adopted just as well as other possible devices. The outcome of the procedure, the macro-phonemes, will naturally not be mere "sums of phonological differentiae", but constituent elements of forms, existing in langue, each having its own function.

It appears thus that it is not only the premises of Prof. Twaddei which conform to the premises of the Prague school, but that also the conclusions in both cases must be identical, if all the conclusions are drawn from the premises. Prof. Twaddei may have been prevented from defining phonemes as constituent elements of forms by his fear that such a formulation might lead, as he says (p. 53), "to a kind of mythology in which the hypostasized phonemes play their roles, or to an equally mythology view of the linguistic process according to which a speaker reaches into his store of phonemes, selects the proper number of each, arranges them tastefully, and then produces an utterance" (p. 53). It is hardly necessary to state that the Prague scholars cannot be reasonably taken to task for the latter kind of mythology. As to the former kind, however, if the establishing of phonological systems and both their synchronic and diachronic examinations are implied, it suffices to be at least partially acquainted with some works of Prince N. Trubetzkoy and Prof. R. Jakobson to see that no mythology, in which the hypostasized phonemes play their roles, is implied, but a really productive hypothesis which accounts satisfactorily for many hitherto obscure points in the development of languages.1

The fact that the barrier established by Prof. Twaddei between

1 See especially N. Trubetzkoy, Die Entwicklung der Gutturalen in den slavischen Sprachen (Mélanges Miletic (So 4, 1933), pp. 205 seqq.); R. Jakobson, Remarques sur l'évolution phonologique du russe (Prague, 1929); J. Vacher, Prof. K. Lutsch and Problems of Historical Phonology, Capitoli pro modeni filologi (Prague), x9 (1923), 273 seqq.
what he calls the "macro-phoneme" and the Prague phoneme is imaginary and artificial only, is rendered more obvious by another interesting fact, viz. that deductions from both definitions reveal not only a general concordance, as might be expected, but even a concordance in some characteristic details. Thus, in forms like *split*, Prof. TWADDELL establishes a special macro-phoneme as corresponding to the sound *p*, on the ground that an opposition *p : b* cannot occur after *s*, so that the sound *p* cannot be regarded as belonging to the usual macro-phoneme *p*, in such forms as *split, nap, tappe*, *pear*, etc. (p. 49). Prof. TWADDELL evidently considers the establishing of such phonemes as a feature distinguishing his own conception of the phoneme from all the preceding ones. Those of the linguists, however, who took part in the First International Phonetic Congress in Amsterdam (1932) will remember Prof. TRUBETZKOY's highly instructive paper entitled "Charakter und Methode der systematischen phonologischen Darstellung einer gegebenen Sprache" (published in the *Proceedings* of the said Congress), in which the establishment of special phonemes in cases of such "phonological neutralizations" was declared to be necessary.

Many other interesting points of Prof. TWADDELL's theory might be discussed. But, owing to limits of time, we must confine ourselves to those so far mentioned. We have repeatedly seen some agreements between Prof. TWADDELL and the Prague scholars in points of fundamental importance, and we have tried to show that even his own methods, if thoroughly considered, may lead to the same conception as those of the Prague scholars. That a different conclusion is due chiefly to the fact that the method by which his theory is developed is applied to artificial structures of isolated classes of forms, not to the natural structure of intercrossing series of forms. We have perceived that otherwise even Prof. TWADDELL's conclusion leads to corollaries which are quite sound, and deduced from the Prague theses. Unfortunately, however numerous the coincidences of both conceptions are, the point in which Prof. TWADDELL differs from the Prague theory is of fundamental importance; by keeping to it Prof. TWADDELL is prevented from taking further steps in the phonological examination of languages, both synchronic and historical.

In conclusion, we cannot but state that Prof. TWADDELL's contribution, even if its main thesis cannot be approved of, has abundantly helped to the elucidation of many problems connected with the theory of the phoneme.

8. Prof. V. BRØNDAL (Copenhagen): *Sound and Phoneme.*

I must confess that I find myself in a rather difficult situation. The very short time at my disposal has obliged me to concentrate on one single point—and of course I have chosen a point which is as fundamental and evident as possible. Now the distinction between Sound and Phoneme may perhaps seem neither fundamental nor evident to a majority of my listeners. In fact, I more than fear that my theory will be rather unfamiliar to many and even a little unsympathetic to some. On the other hand I shall be able neither to draw all the conclusions from my theory, nor to attempt a verification from concrete fact, nor even to quote and discuss more than a few representative views on my subject.

What I can propose to your consideration will be no more than a provisional sketch—the mere outline of one single line of thought and I hope you will judge it accordingly.

The problem of Units—units, e.g., of space and time, of weight and value—is of the utmost importance in any science, as it is in ordinary life; and the question seems of particular interest at the present moment in the phonetic sciences where it concerns the distinction between Sound and Phoneme—a distinction which may be said to constitute the very philosophy of Phonetics and Phonology. No problem could then be more appropriate for discussion in a Congress of Phonetic Studies.

In what may be called Classical Phonetics—the science of speech-sounds as represented in text-books—you generally find no such distinction. Sounds are either considered as purely physical, i.e. acoustical and physiological, phenomena—that was the view of the *Junggrammatiker*, or Leipzig school of linguistics; or they are taken as simultaneously physical and mental, as psycho-physical facts—I think that will be the view of most phoneticians to-day. But, owing to limits of time, we must content ourselves with stating that Prof. TWADDELL's view, generally held by workers and students without being previously reflected upon, may lead to corollaries of the greatest importance; and the question seems of particular interest at the present moment in the phonetic sciences, where it concerns the distinction between Sound and Phoneme—a distinction which may be said to constitute the very philosophy of Phonetics and Phonology. No problem could then be more appropriate for discussion in a Congress of Phonetic Studies.

The Polish philologist BAUDOUIN DE COURTEMAY—among others distinguished himself during the Congress as a phonetician. He has established a distinction between the sound and the phoneme (published *in the Proceedings of the Congress*), and his theory is based on the following postulates. The sound is a physical and mental fact, the phoneme, on the other hand, is an abstraction from the sound. This conception has been criticized, I think rightly, by Monsieur DOROSZEWSKI: in fact a sound is articulated or actualized mentally as well as physically, as is generally admitted by phoneticians; and the phoneme (if such a notion is justified) must be of another kind, not describable in terms of mental elements. This has been acknowledged, I think, by Prince TRUBETZKOY, who says on the subject of phonemes as "Lautbeziehung"—a rather non-committal term—indeed of "Lautvorstellung.

F. DE SAUSSURE, the famous linguist of Geneva, has defined the phoneme as "la somme des impressions acoustiques et des mouvements articulatoires, de l'unité entendue et de l'unité parlée, l'une