one (up to 700 mg in 7 days), and testosterone (up to 70 mg in 7 days) all were ineffective in the relatively large doses employed. Further study of these and related compounds is planned.

Results with cortisone were inconsistent. Total doses of at least 350 mg during 3½ days or more were effective in 3 observations, whereas 2 infants receiving relatively larger doses (100 mg daily for at least 7 days) failed to respond. Total dosages of less than 350 mg were ineffective in 3 cases. The failure of these large doses of cortisone to correct the defect in 5 of 8 observations needs further investigation.

ACTH given in adequate dosage over a sufficient period of time abolishes the defect in aromatic amino acid metabolism manifested by premature infants receiving high-protein diets deficient in ascorbic acid. The mechanism by which ACTH arrests tyrosyluria while concomitantly altering protein metabolism remains obscure. The correction would not seem to involve mobilization of stored ascorbic acid as suggested by the fact that in 2 infants no change in plasma or white blood cell ascorbic acid concentration and no increase in urinary ascorbic acid excretion occurred during therapy. ACTH differs from ascorbic acid in that more prolonged administration is necessary. Moreover, ACTH did not prevent development of the defect in 1 infant so studied, whereas adequate ascorbic acid administration prevents the occurrence of tyrosyluria (*5*).

These data indicate, therefore, that tyrosyluria resulting from an ascorbic acid-free, high-protein diet in premature infants can be consistently abolished by ACTH, inconsistently by cortisone, and is apparently uneffected by desoxycorticosterone, dehydrocorticosterone, Compound "L" of Reichstein, progesterone, or testosterone. One hundred mg of cortisone per day does not as uniformly eliminate tyrosyluria as does ACTH in a dose of only 12.5 mg per day. This suggests either that ACTH stimulates the premature adrenal to elaborate surprisingly large quantities of cortisone or that it increases the secretion of one or more other adrenocortical hormones which either act alone or together with cortisone to correct the tyrosyluria.

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Motion in the Solar Atmosphere as Deduced from Radio Measurements

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It is known that an appreciable amount of ionization exists in the atmosphere of the sun whose pressure decreases at increasing heights above the photosphere. Thus, the value of the electron density is a decreasing function of height in the solar atmosphere. Theoretical considerations (*1*) indicate that when two charged plasmas, of commensurate charge density, are allowed to mix, some of the energy of motion will be converted into electromagnetic energy at the interface of motion. The frequency of maximum radiated energy will be dependent primarily upon the charge density. The intensity of the energy radiated will depend primarily upon the vigor of the relative motion and the sharpness of the interface of motion in terms of wavelengths. It is therefore apparent that turbulence in the solar atmosphere should generate radio waves of a transient nature. Recourse to measurement by suitable equipment shows that the expectations are amply verified. In fact, the profusion of effects is so great, and the types so varied at different times and frequencies, that the observer is hard put to it to learn the fundamentals of the phenomena being studied.

Owing to the ionization in the solar atmosphere, only high frequencies can escape from the lower levels, whereas conditions in the outer parts of the atmosphere favor the generation of lower frequencies. Accordingly, to a first approximation, we may consider that different radio frequencies are generated at different levels in the solar atmosphere. The microwaves should come from near the photosphere. The decameter waves will probably be generated in the outer parts of the corona. It is apparent that if a projectile were to be ejected from the photosphere it would stir up and cause turbulence in various layers of the solar atmosphere consecutively. Thus, it should be possible to detect the motion of such an object by observing the starting times of the transient radio emissions at progressively lower frequencies. The experiment seems simple; unfortunately, however, the above-described phenomenon is quite rare and usually is confused and obscured by other phenomena. Although some tests over a limited range of frequencies have been conducted (*2–4*), the results are inconclusive. However, a clear case of the above-described motion was observed near noon on July 12, 1950. The data of several observers are compiled in Table 1.

TABLE 1

Frequency (Mc)	Time, EST	Duration (min)	Height of source (km)†	Increment height (km)	Increment time (sec)	Velocity (km/sec)	Observers
9,500	1107	5	10,000	3,000	120	25	Naval Research Laboratory
3,200	1109*	5	13,000	3,000	90	35	Cornell University
1,400	1110½*	6	16,000	32,000(4,850)	90	355(55)	" "
160	1112	7	48,000(20,850)	70,000(18,150)	120	585(985)	National Bureau of Standards
75	1114 (approx.)	6	118,000(139,000)	97,000(83,400)	120	810(695)	"
51	1116	4	215,000(222,400)	95,000(111,200)	240	395(465)	"
35	1120	25	310,000(333,600)	-95,000(-111,200)	180	-530(-620)	"
51	1123	10	215,000(222,400)				"
25	No disturbance recorded						

* Relative time between 3,200 and 1,400 Mc is accurate. Probable absolute time as indicated.
† Values for height of source supplied by Naval Research Laboratory, applicable to limb of sun. Parenthetical values by Hari K. Sen, of Central Radio Propagation Laboratory, applicable to central disk.

About 1108 EST a sudden ionospheric disturbance was noted which lasted until noon; at this time the signals had recovered fully. The McMath-Hulburt Observatory observed a flare in progress at 1120 EST of magnitude "one plus" at a position of N 22° E 50°. Although this was not an outstanding flare, it is probably the one that induced the above set of radio transients. There is no simple relation between the optical and radio importances of these flares.

Figures for the absolute intensity are not available in most cases, and it is doubtful if much importance could be attached to them, even were they available. In all cases, except for the two top frequencies, the burst was highly variable in intensity, changes of ten to one occurring in a few seconds or less. This is because these disturbances are composed of a great multitude of transients known as pips. The pip may be associated with the elementary unit of solar radio activity. The parameters of this unit are at present under study. In general, it may be stated that the topmost peak of the intensity of this disturbance varied from 3 times quiet-sun level at 9,500 Mc to 10,000 times quiet-sun level at 51 Mc. These figures are representative of this type of phenonenon.

The starting time is readily scaled because of the sharp rise from the quiet background. The ending time is less certain, because the disturbance subsided much more gradually and because the duration is a function of receiver band width. Accordingly, great significance should not be attached to the data in the third column of the table.

Attention is called to the peculiar behavior at 51, 35, and 25 Mc. At 51 Mc the first part of the disturbance is similar to that at the higher frequencies. Then a pause occurred for 3 min, and the disturbance reappeared for about 10 min. The second part was different from the first in that it gradually built up and died down. The maximum of intensity was about 1/10 the first part. At 35 Mc the sharp rise is apparent in the data but rather weak compared to later transients. The whole affair was incoherent and lasted without pause about 25 min. At 25 Mc the charts showed no solar activity whatever. The day was quiet, and it is certain that if as much as 5% of the activity at 35 Mc had occurred it would have been noted.

The explanation is fraught with speculation. It is inferred from the radio observations that some material associated with the flare was ejected from the photosphere. This material caused turbulence in the solar atmosphere as it rose. The top of the trajectory was at a level close to that generating 35-Mc energy. There an eddy was formed for a protracted period, and some of the material fell back toward the photosphere. By the time the returning material had descended to the 51-Mc level it had become quite weak and dispersed. Shortly thereafter it became totally diffused in the solar atmosphere, as no reappearance of the disturbance could be found at 75 Mc. At rare intervals (*5, 6*) this type of disturbance apparently penetrates into the region of the solar atmosphere, giving rise to energy in the spectral range 10 Mc–16 Mc.

The evidence available upon heights in the solar atmosphere for the source of these various frequencies is meager. Some theoretical (*7, 8*) results based upon optical information secured during eclipses are available. The theoretically deduced values are given in the fourth column of Table 1, the fifth and sixth columns give incremental values, and resultant velocities are tabulated in the seventh column. The initial velocity seems quite reasonable. Apparently the material is subject to additional forces after it leaves the photosphere, which may be of the type suggested by Alfven (*9*). The above remarks are highly speculative. The accuracy of the timing available and the state of present knowledge of the outer atmosphere of the sun do not warrant great confidence in the deduced velocities. They indicate, however, the type of phenomenon encountered. Many more such observations will be necessary before the situation may be considered to be understood.

It should be noted that the deduced velocities are commensurate (*10*) with those of particles causing ionospheric and magnetic storms on the earth. Thus it seems that in the particular phenomenon observed the energy came just short of leaving the sun and therefore was incapable of creating a magnetic disturbance on the earth.

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On the Use of the Capital Letter Prefixes L and D

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Under the current rules of nomenclature for the α-amino acids (*1*) and for carbohydrates (*2*), D and L are used to signify that the configuration of the asymmetric center in the substance named *has been correlated strictly with the configuration of* D- *or* L-*glyceraldehyde*. The standard substance for the amino acids is, in effect, serine, but D- and L-serine have now been correlated respectively with D- and L-glyceraldehyde (*3*).

In carbohydrate nomenclature, D or L refers to the configuration of the *highest numbered* asymmetric center. In amino acid nomenclature, D or L refers to the configuration of the α-carbon atom—i.e., the *lowest numbered* asymmetric center. In the few cases where confusion can arise as to which nomenclature is being employed, subscript g (glyceraldehyde) is written to denote the use of carbohydrate nomenclature, subscript s (serine) to denote the use of amino acid nomenclature.

Recently, the use of the capital letter nomenclature has been extended in practice to a few substances other than carbohydrates or amino acids, the configuration of which has been correlated to the standard substances D-glyceraldehyde or L-glyceraldehyde. Thus, it is proper to write L-lactic acid and L-malic acid for the enantiomorphs of these two α-hydroxy acids, which are commonly found in nature. However, there is a regrettable tendency to extend the use of the capital letter nomenclature to other substances, the correlation of which has not yet been established. In some cases that have come to the attention of the writer, this has been done apparently under the impression that the prefix L is the present-day method of designating the enantiomorph of the substance which occurs in nature, without consideration of the true significance of this symbol. In other cases, capital letter prefixes appear to have been used with the mistaken view that uniformity is for some reason to be desired, even at the sacrifice of clarity.

At the present time, chemical nomenclature is undergoing change in order to keep step with advances in knowledge. The capital letter prefixes have been introduced to provide an unequivocal method of conveying certain specific information regarding the configuration of the asymmetric center or centers in the substances to the names of which these prefixes can properly be attached. An error in their use may be compared, for example, with an error in the number or Greek letter employed to denote position of substitution or point of attachment in the structure, and inevitably leads to confusion.

A case where confusion in the nomenclature has already occurred may be used as an illustration. The dextrorotatory enantiomorph of isocitric acid is present in relatively large amounts in certain succulent plants and is also one of the intermediate substances concerned in the well-known tricarboxylic acid cycle. It is doubtless widely, if not universally, distributed in living cells. In the literature of the past few years, this substance has been variously designated *d*-isocitric acid, *l*-isocitric acid, D-isocitric acid, (+)-isocitric acid, and (−)-isocitric acid. Which of these names is correct? Let us consider the use of the capital letter prefix first.

When one sees the name D-isocitric acid, there is no way to tell, in the absence of a subscript s or g, which of the two asymmetric centers present in this substance is referred to; that is to say, one is in doubt whether carbohydrate or amino acid nomenclature is being used. On the assumption that the D is intended to refer to the configuration of the α-carbon atom—i.e., that amino acid nomenclature is employed—the name carries the implication that the configuration of the asymmetric α-carbon atom of isocitric acid has been correlated with that of the asymmetric center of D-glyceraldehyde. No record has yet appeared in the literature to indicate that this has been accomplished, and, on the contrary, because of the general relationship of naturally occurring isocitric acid to L-malic acid in metabolism, and from analogy with the configuration of other related substances, it is far more likely that the α-carbon atom of the enantiomorph of the isocitric acid found in plants has the configuration of L-glyceraldehyde. That is to say, the chances are that investigation will ultimately show that this substance is L_s-isocitric acid.

On the assumption that the D is intended to refer to the configuration of the β-carbon atom of isocitric acid—that is to say, that carbohydrate nomenclature is employed—the name implies that the configuration of this asymmetric center has been correlated with that of D-glyceraldehyde. This in turn suggests that