questions and answers for conferences were correlated across the conferences held in 1961, the correlation was .465. The analogous correlation was .610 for 1962 and .783 for 1963. Similarly, the correlation of mean lengths increased from .500 across the first 20 conferences to .562 across the second 20, and to .764 across the last 21. The correlation of the original (not averaged) question and answer lengths also increased over the years (.280 for 1961, .284 for 1962, and .296 for 1963).

Analysis by Fisher's z (*6*) indicates that the differences between correlations over a period of time were not significant, but the fact remains that this increasing correlation occurs at a better-than-chance frequency. Explanation at this point is difficult, but it is possible that this increasing correlation was due to increasing rapport between the President and the reporters. This could have led to the President being more sensitive to the length of the reporters' questions and to the reporters being more sensitive to the length of the President's answers.

Matarazzo (*1*) found that the correlation between question length and answer length for astronaut and ground communicators (across ground stations) tended to decrease over the three orbits in both space flights. Analysis within the individual Kennedy conferences gives some support to this finding. While the differences were slight, the most frequent pattern (in 15 of 61 conferences, only 10 expected by chance) was for the correlation of question-answer length to decrease over the first, second, and third segments of the conferences. With regard to the Kennedy conferences, and the two space flight interviews as well, explanation is difficult. This is because the bulk of the data seems to indicate that the tendency to answer a long question with a long answer and a short question with a short answer is a conditioning phenomenon which would lead to increasing rather than decreasing correlations within the conferences.

It is of some interest that, in terms of the ratio of answer length to question length, the Kennedy news conferences rank somewhere between the Matarazzo civil service interviews and the space-flight conversations. Matarazzo had so regularly obtained a 5 to 1 ratio that he labeled it the "verbal interaction constant" (*2*). On the other hand, the ratios on the space flights ranged between 1.2 to 1 and 2.4 to 1. In the Kennedy conferences, the mean length of answers was 14.78 lines and the mean length of questions was 5.46 lines—a ratio of 2.7 to 1.

Although there are some rival explanations [for example the effect of question topic studied by Matarazzo *et al.* (*7*)], the press conference data is one more piece of evidence demonstrating the pervasiveness of the speech-duration phenomenon.

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3 May 1965

Acute Phase Protein in Serum of Women Using Hormonal Contraceptives

Abstract. *Acute phase protein precipitating somatic C-polysaccharide of pneumococci appears in serum of women under treatment with hormonal contraceptives in a significantly higher number of cases when compared with control groups. The summarized results of three preliminary studies show that in 80 control serums there were four positive specimens (5 percent) and in 80 serums from women using hormonal contraceptives there were 58 positive specimens (72.5 percent).*

C-reactive protein is an acute-phase protein in serum which precipitates somatic C-polysaccharide of pneumococci. This protein is not detectable in normal individuals. It has been the common concept for more than two decades that the presence of C-reactive protein in the serum is an indication of inflammation (bacterial or aseptic), rheumatoid disease, tissue injury, and tissue decay (*1*). C-reactive protein appearance can also be stimulated by intravenous injections of bacterial endotoxins. There are several reports that this protein appears during normal pregnancy in a certain percentage of cases. The frequency of its appearance (positive tests) seems to increase during the second and third trimester (*2*). The liver appears to be the site of its synthesis (*3*).

Table 1. Results of C-reactive protein tests, first study (*4, 11*).

Cycle	Total	Positive	Negative
Control group 1			
Day 12–14	20	0	20
Control group 2			
Day 24–26	20	0	20
Women on Enovid			
Day 15–25	20	11	9
Control group 3, normal pregnancy			
Week 35–40	20	12	8
Hypertensive disorders in pregnancy			
3rd tri.	25	13	12

During the course of studies on serum proteins in pregnancy (*4*), differences between two control groups of apparently healthy women in the reproductive age were recognized. In a group of 20 women under cyclic treatment with Enovid (*5*) (5 mg norethinodrel, 0.1 mg mestranol) for a period of 2 to 24 months, 11 serum specimens had C-reactive protein. In a group of women with normal menstrual cycles no positive test was observed in 20 specimens drawn between the 12th and 14th day of the cycle or in 20 specimens taken between the 24th and 26th day of the cycle (see Table 1). It may be interesting to compare these values with those obtained in pregnancy in this study. The results are similar in normal pregnancy and in hypertensive disorders in pregnancy (Table 1).

Corresponding results were obtained during a short study (*6*) of a group of 34 apparently healthy women under cyclic administration of Anovlar (*7*)

Table 2. Results of C-reactive protein tests, second and third studies (*6, 12, 13*).

Cycle	Total	Positive	Negative
Control group 4			
Day 12–14	20	1	19
Control group 5			
Day 24–26	20	3	17
Women on Anovlar			
Day 15–25	16	9	7
Women on Aconcen			
Day 15–25	12	10	2
Women on other hormone preparations			
Day 15–25	6	6	0
Women on Ovulen			
Day 20–28	26	23	3

(4 mg norethindrone acetate, 0.05 mg ethinylestradiol), Aconcen (*8*) (3 mg chlormadinone acetate, 0.1 mg mestranol), and other preparations of different origin in single cases, for a period of 1 to 24 months. Serums from 25 of these women showed positive tests, whereas 9 were negative for C-reactive protein. A control group of apparently healthy women in the reproductive age was also investigated. Twenty specimens were taken between the 12th and 14th day, and 20 were taken between the 24th and 26th day of the cycle. Four positive tests were observed among the 40 specimens (Table 2).

A third study was performed on a group of 26 apparently healthy women under cyclic administration of Ovulen (*5*) (1 mg ethynodiol diacetate, 0.1 mg mestranol) for a period of 7 to 38 months. Twenty-three specimens from this group showed C-reactive protein (Table 2).

The tests were performed in the first and third studies with "CR-test Latex Anti-CRP Reagent" (*9*). In the second study "Latex CRP Reagent Behringwerke" (*10*) was used. There were no differences in the number of positive tests before and after inactivation at 56°C for 30 minutes. A prozone phenomenon (that is, negative reaction in undiluted serum, positive reaction in diluted serum) was observed in a few cases, indicating a relatively high concentration of C-reactive protein in these specimens.

The data were obtained in part from inhomogeneous groups. Interpretation is difficult at present, but our observations suggest a certain influence of hormones on the appearance of C-reactive protein in human serum. This should be considered in clinical evaluation of the test.

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13. The specimens from patients under treatment with Ovulen were made available through the courtesy of G. D. Searle and Company, Chicago, and Dr. J. Scott, Department of Obstetrics and Gynecology, Ohio State University, Columbus, Ohio. Study supported by G. D. Searle and Company, Chicago, Illinois.

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Magnesium Pemoline and Behavior

Plotnikoff reports (*1*) facilitatory effects of magnesium pemoline of "acquisition and retention" (or on "learning and memory") of an avoidance task in rats. Unfortunately, his language implies more than is supported by the data. It implies first of all that the pemoline-treated animals acquired the avoidance task to a shorter latency than the controls, indicating an effect of the drug on the acquisition process, which the data clearly support. It also implies that the pemoline-treated rats retained at a shorter latency or for more trials than the controls, which the data also indicate. However, in this latter case the controls are equivocal with respect to whether these data represent a drug effect on retention processes. This is because the control rats had previously acquired the task to a significantly poorer degree than the drug animals. In other words, the difference in retention may simply be a consequence of the difference in level of acquisition (the better the acquisition, the better the retention) and may therefore only reflect effects of the drug on acquisition processes, whatever these acquisition processes are. The large difference in retention between the control rats of Table 2 and the three groups of Table 3 casts some doubt on the reliability of the retention test.

It is particularly important that this point be recognized since the work has implications for research on possible biochemical processes in learning and memory, and particularly on the role of RNA in coding memory. There are indications that one should distinguish between effects on short-term acquisition and long-term retention; for example, goldfish given puromycin exhibit short-term acquisition but not long-term retention (*2*). Although RNA could be involved in both short- and long-term memory, theory and data suggest that it is more likely to be involved in the latter. Thus, if the behavioral effects of magnesium pemoline are due solely to its action on RNA polymerase, one might expect to see behavioral effects on retention or consolidation, and lesser, if any, effects on acquisition. Whatever the case, it certainly seems necessary to distinguish whether the effects observed are on short- or long-term memory processes, or both, and it seems desirable to establish whether magnesium pemoline has any effect when acting on long-term memory processes alone.

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Over the past few years we have found it extremely difficult to condition control animals to criterion for retention (15 seconds or less) in less than 50 acquisition trials (ten trials per day). Actually many animals reach acquisition criterion (15 seconds or less) within 10 trials but show only limited retention on day 2 without buzzer or shock reinforcement. For these reasons, it was especially striking that rats receiving prior treatment with magnesium pemoline not only reached acquisition criterion within a few trials but even exhibited a high degree of retention (15 seconds or less jump out time) for several months.

Thus, I believe our data support enhancement of both short- and long-term memory of this conditioned avoidance response in rats.

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