

not wholly unresponsive. I am more of the belief that we have many ways in which to accommodate to a variable smoke, and perhaps the least of these is to smoke more cigarettes. For too long investigators have relied on measures relating to the cigarette (number of cigarettes, number of puffs, butt length) as consumption rate indices. True enough, the number smoked is an infallible index of cigarette consumption, but we should be thinking more in terms of cigarette consumption. Cumulated puff volume tells us more, but even this is but a measure of smoke taken into the mouth. The ultimate index is how much passes over into the bloodstream, a not so readily monitored phenomenon. We're now looking at the fate of the smoke entering the mouth; how much goes down, how much comes back out, and related behavioral events that we anticipate finding to be dose-regulating mechanisms of remarkable precision and sensitivity.

Thus to accommodate to the 15 percent reduction in available Marlboro nicotine, the smoker who was getting 50 percent of the available nicotine over into his blood from the Marlboro delivering 1.1 mg of nicotine into a smoking machine now must get 59 percent of what the current Marlboro offers him. He can take bigger puffs, or inhale more from the supply drawn into the mouth (we have varying quantities of residual smoke in the mouth at the end of an inhalation) or for more efficient extraction of the goodies, he can draw it in deeper or hold it longer.

So we're looking at respiratory behaviors. I have a physiological psychologist joining the staff this month. Instrumentation is the big challenge at the moment.

Send the manuscripts.

Regards,

WILLIAM L. DUNN, Jr.,  
Principal Scientist.

Charge Number: 1600

Program Title: Smoker Psychology

Project Leader: W.L. Dunn, Jr.

Period Covered: January 1-31, 1976

Date of Report: February 10, 1976

Project Title: Smoke Inhalation Study

Written by: Carolyn Levy

Our new apparatus which allows the subject to puff on a cigarette while his face is in the mask is almost operational. We are making the rubber masks in order to give the subjects better access to the mouthpiece.

In order to determine if the delivery of a cigarette is reduced by the new apparatus, two Marlboro monitors were smoked through the apparatus on the twenty-port smoking machine. For comparison purposes, two monitors were also smoked through the regular smoking profile recorder mouthpiece. The TPM deliveries (17 puffs) were 38.2 and 38.4 mg. Thus, we get comparable deliveries with the two different pieces of apparatus. In addition, these deliveries are not appreciably different from what would be expected from smoking the monitors in the regular fashion on the smoking machine.

Our next study will again use R&D smokers. Cigarettes delivering 18, 15.7 and 13.3 mg of tar have been made, holding puff counts and RFD's approximately constant.

Project Title: Regulatory Identification Program

Written by: Carolyn Levy

We are ready to begin our first attempt to identify nicotine regulators and non-regulators among our smoking student population. In selecting our initial subjects we

hypothesized that those who smoke more than 30 cigarettes per day of a high delivery brand (>15 mg tar) would more likely to regular than those who smoked less than 10 cigarettes per day of a comparable brand. Thus we have two groups: likely regulators and likely non-regulators.

In order to measure daily nicotine intakes, the subjects will smoke at home and save butts for three weeks. During Week 1 they will smoke their own brands. During Weeks 2 & 3 they will smoke high and low delivery products in a counterbalanced order. The relevant dependent variables are number smoked per day and the nicotine residual in the butts. We expect that daily nicotine intakes will be more product-dependent for non-regulators and more product independent for regulators.

After this butt saving period, the smokers will come to the lab for four sessions. Session 1 will be used to familiarize the subjects with procedures and apparatus. During Sessions 2-4 we will measure their smoking behavior while smoking own brand, high and low delivery products. In order to reduce the number of variables that are free to vary in the smoking situation, we will tell our subjects when they will smoke a cigarette, how many puffs they may take, and where along the rod these puffs will be taken. We want to find out if we can "force" our potential regulators to modify their puff volumes, inhalation volumes, and/or smoke retention times in order to obtain their usual nicotine dose. On the other hand, we do not expect the potential non-regulators to modify their smoking behavior under these circumstances. When not smoking, all subjects will be occupied with time filling tasks.

This initial study will enable us to assess the relevance of consumption data to regulation. That is, are heavy smokers more likely to regulate than light smokers? In addition, we would like to determine other factors that are correlated with regulation so as to improve our ability to predict which smokers will be regulators.

Project Title: Smoking of Nicotine Free Cigarettes

Written by: Carolyn Levy

Due to a delay in equipment set-up, we have been unable to obtain denicotinized tobacco. Hopefully we can begin this study in one or two months.

As an alternative to denicotinized tobacco, we have look into the possibility of having cigarettes made from a strain of tobacco that is naturally low in nicotine. Our comparison cigarette would also be made of this tobacco with nicotine citrate added to bring the nicotine content up to "normal." This tobacco should be available by the end of February.

Project Title: Annual Monitoring of Cigarette Preferences

Written by: F.J. Ryan

As a preliminary test of our ballot and procedures, five non-menthol cigarettes—delivering 8, 11, 14, 17, and 40 mg of tar and 6, 7, 8, 1.0, and 1.2 mg nicotine—were sent to 300 RP3 panelists who rated them for acceptability. Usable replies were received from 232 (77%) of the panel.

A preliminary analysis of returns based on incomplete data suggests that the differences in ratings were small, as seen in Table 1, but illustrative.

\*\*\* [Insert notation for deleted material]

(From Philip Morris, New York, NY  
To: Mr. J.J. Morgan

From: Al Udow

Subject: Why People Start To Smoke

Date: June 2, 1976

At the end of last week I gave you some material intended to answer Cliff Goldsmith's question on why people start to smoke. Because we should have this information at our disposal, this document summarizes the data available, and cites references.

There are surprisingly few hard facts on the question of the initiation of smoking. Most of those who write on the subject of smoking tend to rely on the statistical work of Daniel Horn and the National Clearinghouse for Smoking and Health. Others offer opinions without sources or data to back them up.

The best summary of the situation may be an entry by Matarazzo. Joseph D. Matarazzo, of the University of Oregon Medical School has written widely on smoking. He is the primary author of the entry on smoking in The International Encyclopedia of the Social Sciences (1968).

His summary of the factors involved in the initiation of smoking is as follows:

These studies consistently have identified parental smoking as one of the most important predisposing factors in smoking among school-age children. As mentioned above, most smokers appear to have begun smoking between the ages of 10 and 18. If both parents smoke, the probability that their children will begin to smoke is several times that of children with nonsmoking parents. When only one parent smokes, the incidence of smoking among the offspring falls midway between that of the other two groups. Published data also suggest a higher frequency of smoking among children with older siblings who smoke.

The relationship of some other sociopersonal factors to initiation of the smoking habit is less clear-cut. In general, the studies suggest that youngsters' beginning to smoke is related to: (a) curiosity about smoking; (b) conformity pressures among adolescents; (c) need for status among peers, including self-perceived failure to achieve peer-group status or satisfaction; (d) the need for self-assurance; and (e) striving for adult status (see the reviews by Hochbaum 1964; Horn 1963). However, it is difficult to measure the strength of such needs, as well as their relative influence, and therefore these relationships should be considered tentative.

The basis for his, and many other statements is a publication of the National Clearinghouse of Smoking and Health (1972) which reported on two surveys of teenagers, numbering 4931 and 1968 and 2640 in 1972. Their conclusions are based largely on statistical inference.

The report concludes:

While there are many factors in the environment of the child that influence his taking up, or not taking up, the smoking habit, the one that has by far the most influence is the smoking behavior of those around him . . .

In households where both parents are present, the teenager is much more likely to be smoker if the parents smoke. In fact, if both parents smoke the teenager has about twice the likelihood of being a smoker than if neither parent smokes, the rates are 18.4% and 9.8% respectively. Those with one parent who smokes fall in between, with a rate of 13.8%.

We find a striking relationship between the behavior of the older members of the family and that of the younger members. In homes

where both parents are present, boys with an older brother or sister are twice as likely to smoke if one or more of the older siblings smoke than if none smoke (30.0% and 13.1%). The relationship is even stronger among girls, with a four to one ratio; 24.8% of girls with one or more smoking older siblings are smokers while only 5.6% of those with older siblings, none of whom smoke, have taken up the habit.

When the combined effect of smoking of parents and older siblings is considered, the concept of family patterns is reinforced. The lowest level of smoking is found among teenagers who live in households where both parents are present and neither smokes, and who have older siblings, none of whom smoke. Less than one in twenty have become regular smokers (4.2%). This compares with one in four (24.9%) in families with at least one parent and one older sibling who smoke. The older sibling, as would be expected, is more likely to smoke if he has a parent who smokes. It is impossible to determine precisely what are the relative effects of parental and sibling smoking on the teenager. However, we do see that he is more likely to smoke if the older sibling smokes and the parent does not than if the parent smokes and the older sibling does not. We cannot discount the influence of either; they interact with each other, and as they do, the family pattern is established.

[Not legible]

Harold S. Diehl, M.D. (1969), of the American Cancer Society quotes liberally from David Horn of the National Clearinghouse for Smoking and Health. Much of what he says is stated authoritatively without source or supporting data.

"For children who see their parents, teachers, other adults, and older brothers and sisters smoking, the desire to be like them, to be grown-up, constitutes a strong incentive to try it themselves. Studies show that children are much more likely to smoke if their parents smoke." (No source given)

"Many boys and girls start smoking to show their independence, as a symbol of revolt against authority, to feel sophisticated and grown-up, to be 'one of the crowd', to gain social status, to have something to do." (No source given)

"The advertisers of cigarettes exploit this urge by creating an image of a smoker as an outstanding athlete; a handsome, virile outdoor man; nonchalant campus leader; a man who succeeds; a sophisticated, charming young woman." (No source given)

"For some smokers the motions and movements associated with smoking seem to have a soothing, pleasurable effect, similar to the chewing of tasteless objects such as pencils, straws, or chewing gum after the flavor is gone. It also seems that some of the satisfaction derived from smoking—particularly of pipes and cigars—is related to watching the smoke. Few people enjoy smoking in the dark, and blind men rarely smoke.

For persons who are self-conscious and insecure smoking provides an activity and something to do with their hands that takes their minds off themselves. Many accept the image created by cigarette advertisements of cigarette smoking as a symbol of poise, self-confidence, and social success. But once one becomes dependent upon cigarettes, habituation or addiction are impelling drives to continue." (No source given)

Dr. Daniel Horn, Director of the National Clearinghouse for Smoking and Health, says that people smoke cigarettes for one or more of the following reasons: (1) for stimulation,

such as to get started in the morning; (2) because of addiction; this smoker "must have" a cigarette after a certain amount of time has elapsed; (3) to reduce negative feelings, such as distress, anger, or fear; (4) out of habit—a behavior pattern followed almost involuntarily; (5) for oral gratification—the satisfaction derived from something in the mouth; and (6) for pleasurable relaxation—to enhance positive feelings, such as after a good dinner.

A paper by Meyer, Friedman and Lazarsfeld (1972) given before the Conference on Motivation Mechanism of Cigarette Smoking provides some qualitative insight into the initiation of smoking which may be abstracted as follows:

Many smokers, particularly "white collar" started in rebellion against their parents. Another theme is that of emulating friends and relatives. Peers provide especially important role models to emulate and partners with whom to rebel.

The theory is offered that when youngsters of smokers start to smoke, they are helping to deny that their parents are in danger. Also, when offspring of smokers take up the practice themselves, they are striking back at their parents' hypocrisy, and at the same time, making a connection with them.

The Encyclopedia Americana (1969) says that the way smoking begins is not fully understood and then attempts to explain it:

The beginning of smoking and the processes by which it becomes a habit are complex and not fully understood. In large part, the habit stems from psychological and social drives; the individual smoker does what others around him do. Physiological and possibly constitutional factors may play a lesser role. There is little doubt that the physiological effects strengthen the habit. Nicotine, one of the many substances pharmacologically active in tobacco smoke, exerts its effects on the heart and the nervous system in particular. Smoking of one or two cigarettes causes an increase in the heart rate and a slight rise in blood pressure. The effect on the nervous system is predominantly tranquilizing and relaxing.

Relationships between smoking and a number of psychosocial and economic variables are apparent, but no simple explanation is evident. It is obvious, however, that smoking as a behavior has become interwoven with the complex culture and environment of modern society.

Start of the Habit. The smoking pattern is established relatively early. Before 12 years of age less than 5 percent of boys and 1 percent of girls smoke, but soon thereafter a steady increase begins. In the 12th grade, from 40 to 55 percent of children are smokers, and by the age of 25 years about 60 percent of men and 36 percent of women have acquired the habit. The increase in the percentage of smokers continues into the fourth decade of life.

Among the reasons why children take up the habit are their desire for adult status and their need to conform to social pressures exerted by other children. In striving for status and self-assurance, children may imitate their parents or famous people. The association between the smoking habits of parents and children is strong and many-sided. More children smoke in families where both parents smoke than in families where neither parent smokes. In adolescent and adult life, similar factors involving the individual's need and his environment appear to play a role in the beginning of smoking.

Although no differences in intelligence between smoking and nonsmoking children

have been established, smokers are more frequent among those who fall behind in scholastic achievement.

Personality and Other Factors. No clearly defined "smoker's personality" has been established. Furthermore, no personality characteristic is found exclusively in either the smoker or the nonsmoker. Certain personality factors—among them extroversion, neuroticism, and increased psychosomatic complaints—have been found to be slightly more common in smokers.

Stressful situations occurring in an environment favorable to smoking may contribute to the starting of the smoking habit, as well as to its continuation. For instance, some men begin smoking in the tense days of their first job. Smokers consistently report that they tend to smoke more when under tension.

Both more smokers and more early starters are found in the unskilled working classes. White collar, professional, managerial, and technical occupations contain fewer smokers than craftsmen, sales persons, and laborers. Smokers are reported to change jobs more often than nonsmokers. Another socioeconomic factor, income does not seem to be as consistently and positively related to prevalence of smoking as to the quantity of cigarettes consumed. A relationship does exist between smoking and educational level, but it seems likely that this relationship is really based on occupation, because those occupations associated with higher education usually show a smaller prevalence of smokers.

Social pressures undoubtedly delayed the acquisition of the smoking habit by women. Increased cigarette consumption by women began in the 1920's, and the rate rose rapidly during and after World War II. Although the habit has been prevalent among women for a shorter period, the percentage of women who smoke has been increasing faster than the percentage of men who smoke.

Kozlowski and Harford (unpublished) cite a 1959 British study by Byner based on 5601 adolescent school boys in Great Britain which concludes that the important influences that lead to the initiation of smoking are: (1) number of friends who smoke (2) anticipation of adulthood (3) parental permissiveness toward smoking (4) whether or not deterred from smoking by danger of lung cancer.

The Yankelovich organization (1976) undertook a study for the American Cancer Society by means of interviews with 826 teenagers and young women.

Their conclusions about the teenage smoker suggest some correlates (though not exactly reasons) of the beginning of smoking. They say:

*The Profile of the Teen-age Girl Smoker:* The profile of the teen-age girl smoker counters the image of a socially ill-at-ease youngster turning to cigarettes as a means of being thought of as more sophisticated or as a needed prop for handling social situations. Instead, it is the teen-age girl smoker who is at ease socially, very put together, and with full confidence in herself. Parties and social gatherings are her meter. One measure of both her sophistication and her value structure is the fact that 31% have already had sexual relations.

It is instead the nonsmoker who tends to be quieter, far less self-assured, more involved with athletics, school activities and clubs—but more likely in her spare time to be reading or watching television.

*Rebelliousness and Smoking:* Cigarette smoking among teenage girls, however, does

appear to be highly identified with an antiauthority rebellious syndrome. Among teen-age girls who smoke 25% use marijuana regularly compared to 3% of the non-smokers; 81% of the smokers drink and 32% drink at times to get drunk compared to 42% of the non-smokers who drink or 4% who drink to get drunk. One out of four teenage girl smokers have run away from home compared to 10% of the non-smokers. Despite the widespread acceptance of cigarettes, and the acknowledgement of smoking by parents and school authorities, the old "wood shed" image of cigarette smoking lingers on—while the concept of not smoking of nonconformity or rebellion against advertising, big business, society, has not yet caught on.

*Teen-age Girl Smokers and Peer Relationships:* Peer relationships, long identified as a major factor in teen-age smoking, continue to operate as a dominant influence. Teen-age smokers flock together and have more respect for the opinions of their own peers than for authorities. There is, however, an opposite side to the story as well. For the current study indicates that all teen-age girl non-smokers are not homogeneous but rather divide into two almost equal groups. It is easy to explain why over half of the non-smokers (55%) do not smoke—for they are not influenced by the new values, but are very traditional in their views and outlook. They are strongly religious and respectful of authority and they shy away from their peers who smoke, use marijuana and are part of the new values. The other group of non-smoking teenagers are very different for they share many of the same values as the smokers—and are highly exposed to the total smoking environment. We call them the "Vulnerables" for, on the surface, they appear to be ready candidates for the next wave of new smokers. One out of two of the "Vulnerables" report that half or more of their male friends smoke; a third indicate that most of the girl friends smoke. A majority have one or more parents who smoke. They see more women smoking now than in the past. Yet they do not smoke. Instead they have found consciously or unconsciously, some strong barriers to smoking. These are the importance of being in control of one's own life; and emphasis on physical fitness and well-being; concern about the addictive nature of cigarettes, and perhaps most of all, by becoming militant antismokers—people who are angered by other smokers, upset by smoke filled rooms and ready for increased regulation of smoking. In other words, they are finding a cause—and a new peer identification.

Information on the motivation that leads to a continuation of smoking comes from a special study done for Philip Morris (Brand, 1971). Smokers first answered the question "Why do you smoke?" with platitudes such as:

- gives me something to do with my hands
- relieves tensions
- goes well with a social drink
- settles my stomach after a heavy meal
- helps me to relax
- just an automatic habit
- keeps my weight down

But on deeper probing, the circumstances in which smoking occurs may be generalized as follows:

1. As a narcotic, tranquilizer, or sedative. Smokers regularly use cigarettes at times of stress.
2. At the beginning or ending of a basic activity. This would cover such activities as entering or leaving a room, starting or finishing a job, going into a party or leaving one, starting a telephone conversation or a personal visit.

3. Automatic smoking behavior. Heavy smokers, particularly, light up at intervals without much thought, and often without realizing what they are doing.

It should be noted that there was scarcely any unprompted reference to smoking for "taste", or "flavor", until it was suggested—and then everyone agreed that it was the major element in smoking satisfaction.

[From Philip Morris, Richmond Virginia]

To: Dr. T. S. Osdone

From: W. L. Dunn

Subject: Rationale for Investigating the Effects of Smoking upon Electroencephalographic Phenomena

Date: December 22, 1976

The pharmacology of nicotine and tobacco smoking is very complex (Larson et al., 1961; DiPalma, 1971; Goodman & Gilman, 1970). Nicotine acts on the cardiovascular nervous gastrointestinal and endocrine systems. Armitage, Hall, and Morrison (1968) and Jarvik (1970) have provided evidence for nicotine as the pharmacological basis of tobacco smoking. It is obvious that we need much more research to unravel the relative importance of the multiple actions of nicotine in doses inhaled during tobacco smoking. In agreement with these investigators, it is my basic premise that one of the many reasons people smoke tobacco is that it contains nicotine. An extension of that premise is that the doses of nicotine inhaled produce definite, mild, and transient neuropharmacological effects which are positively reinforcing and thus promote repetition of smoking. These effects include: (a) modulation of conditioned behavior; (b) mixed depression and facilitation of the neural substrates of reward; (c) transient (in minutes) EEG and behavioral arousal crudely reminiscent of d-amphetamine but pharmacologically quite different; and at the same time (d) skeletal muscle relaxation. Edward F. Domino, in Dunn (Ed.) Smoking Behavior: Motives and Incentives, 1973.

In addition to the four classes of neuropsychopharmacological effects cited by Domino, there has more recently been added a fifth class: modulation of unconditioned, innate aggressivity. Philip Morris, one can remark in passing, funded the research establishing this fifth class (R. Hutchinson at Fort Custer State Home, Michigan; G. Bernston at the Ohio State University; and Robert Waldbilling at Rockefeller University).

It is important to note that all of these effects are attributed to the action of smoke components on the central nervous system. It is also essential to know that it is the consensus of investigators that the reinforcement of the smoking act is the effect of smoke component action in the central nervous system. It behooves us, therefore, to seek an ultimate, explanation of cigarette smoking among the nicotine- or smoke component-related events of the central nervous system.

These effects can be studied in various ways. One way is to observe the post-treatment behavior of both animals and humans, such as we have been doing for some years with humans in the Behavioral Research Laboratory. Another way is to monitor treatment effects as they occur within the brain via the monitoring of the electrical activity of the brain. Such monitoring can be done in a passive, nonobtrusive manner by

means of the electroencephalograph. This instrument is essentially an array of micro-sensitive sensors attached to a multi-channel recording device. EEG technology, combined with the analytic capabilities of the computer, now permits some localization of signal source and the differentiation of complex wave patterns into their simpler component elements. The smoke effects of EEG patterns were reported as early as 1958 (Hauser, H., et al., EEG changes related to smoking. *Electroencephalography and Clinical Neurophysiology*, 1958, 10, 576). Barbara Brown, in Dunn (Ed.) Smoking Behavior: Motives and Incentives, 1973, reviewed this literature.

The continually improving technology has recently led to the isolation of an intriguing wave pattern which appears to be the c.n.s. correlate of the psychological state of anticipatory alertness. This is a vaguely defined concept because of the difficulty of reducing it to operational terms. Attempts have been made to more accurately delineate the state by resorting to such terms as vigilance; arousal, readiness to respond, etc., but it has remained an elusive, though undeniably real variable in psychology. The identification of an observable and quantifiable correlate of this immensely important psychological factor is, indeed, a welcome development. This EEG phenomenon has been labeled the contingent negative variation (CNV). First observed by Walter Grey in 1964, the CNV has been found to occur most intensely in an expectancy situation (having been given an alerting signal, ready to respond to execution signal).

During the past two years Prof. John W. Thompson, and Dr. Heather Ashton at the University of Newcastle Upon Tyne have been observing the effects of smoking upon the CNV. At the Zurich Conference in September 1976 they reported observable, replicable changes in the CNV upon smoke inhalation and nicotine injection (papers available in manuscript form). They relate these changes to the subjectively reported stimulating and relaxing effects of smoking, but with speculative inferences. The association of smoking and CNV patterning appears to be real, but further study is needed. Judgmentally, however, the area has great potential for yielding up observations related to why people smoke cigarettes. The Research Center of B.A.T. in Southampton, England, has already established an EEG laboratory to study the relationship.

EEG research is not usually considered to be the domain of the psychologist. On the other hand, it is not the proprietary domain of any existing discipline. Psychologists are as prevalent, however, as any other specialists as users of the instrument, as they have pursued their investigations of sleep, dreaming, hypnosis, behavioral responses to exogenous agents, psychopathology, intelligence, learning, etc. It is inappropriate to think in terms of EEG research, except in those not so frequent instances of pure research into the nature of the phenomenon. More properly, electroencephalography should be viewed as a technology for monitoring otherwise unmonitored events of direct psychological significance. Since we have already hypothesized a relationship between smoking and arousal (my paper at the Zurich Conference), and since the CNV is apparently the neural correlate of arousal, to initiate studies which entail the monitoring of the CNV seems mandated by our corporate and scientific responsibility.

Accordingly, we have in our plans for 1977 the creation of an EEG facility. The leading

contender for the open position in the Behavioral Research Laboratory is a man specialized in the field, having already established two such units. He estimates the cost to be \$35,000, this including the required dedicated computer. The required observation chamber with Faraday cage is already in service.

Charge Number: 1600

Project Title: Smoker Psychology

Period Covered: October 1-31, 1977

Project Leader: W.L. Dunn, Jr.

Date of Report: November 11, 1977

Project Title: Psychophysiology of Smoking

Written by: F.P. Gullotta

Initial data gathering has been completed in the study on the effects of cigarette smoking on heart rate. Statistical analysis is now in progress. Additional data will be obtained when the new experimental cigarettes which are being manufactured for Dr. Levy are received.

Project Title: Smoking and Learned Helplessness

Written by: C.J. Levy

Complete data have been collected on 41 subjects thus far. We hope to finish data collection by February.

Project Title: Smoking of Low Nicotine Cigarettes

Written by: C.J. Levy

We are still awaiting our new batch of cigarettes.

Project Title: Habit and Need Cigarettes

Written by: F.J. Ryan

Although nicotine intake appears a critical mainstay of tobacco consumption, not all people smoke for nicotine on all occasions. Many of a smoker's cigarettes are undoubtedly smoked to be sociable, to occupy his hands, to give him an excuse to rest, or for some other nonnicotinic reason. Such cigarettes are smoked not because of some internal cues triggered by the nicotine level in the smoker's body but because of the presence of external cues which have in the past been associated with smoking.

To the extent that these external cues tend to occur regularly in the smoker's day, many of his cigarettes will be smoked out of habit (i.e., will be conditioned responses triggered by external cues) rather than out of any nicotine need (i.e., will be conditioned responses triggered by internal cues). All these cigarettes contribute to the total nicotine in the system, so that a cigarette smoked out of habit will delay the time until a cigarette is smoked out of need.

When a smoker switches from a high nicotine cigarette to a low nicotine cigarette, or vice versa, it is the nicotine input of these habit cigarettes which makes it impossible for us to predict what changes in consumption will occur from our knowledge of the deliveries of the two products. If many cigarettes have been smoked out of habit, then the past nicotine intake may have been higher than needed, so that lowering delivery may still not lower it enough to cause extra cigarettes to be smoked. Similarly, if nicotine delivery is increased, because many cigarettes will continue to be smoked out of habit, the increased nicotine will not cause many fewer cigarettes to be smoked.

It stands to reason, therefore, that two groups of smokers—one which smokes many cigarettes out of habit and few out of need and a second which smokes few out of habit and many out of need—would respond differently to shifts in nicotine delivery.

To test the reasoning of this argument we are beginning a two-part project. The first

seeks to distinguish those smokers who smoke many cigarettes from habit and few from need from their opposites. The second part will switch the two groups from high (or low) nicotine-cigarettes to low (or high) nicotine cigarettes. The smokers who smoke mainly from habit should show little or no compensation (titration), whereas those smokers who smoke mainly from need should show relatively more compensation.

Groups will be identified by the regularity with which critical stimulus situations elicit smoking—which means by the extent to which they are "habit" smokers. Nonhabit smokers will be assured to be "need" smokers.

Regularity of behavior will be evaluated from a diary kept by each smoker, showing the time of day when each cigarette was smoked and the events taking place at the time. Nicotine intake will be determined from butt residues.

VCU students will serve as subjects, making regular visits to our Franklin St. quarters to leave butts and pick up cigarettes. We will seek as many smokers as possible, and then try to use the extremes to make up the two groups.

To: Dr. T.S. Osdene

From: W.L. Dunn

Subject: Behavioral Research Accomplishments—1977

Date: December 19, 1977

A Summary of 1977 Accomplishments

Making reference to the Plans and Objectives for 1977 as written December 1, 1976, we have succeeded some and failed some; happily more of the former than the latter.

Our successes: We have—

(1) Acquired a third principal researcher.  
(2) Structured the group into three delineable programs each headed by a principal investigator.

(3) Established an EEG facility (to be fully instrumental during the first quarter of 1978).

(4) Moved aggressively into comparative behavior studies.

(5) Nearly completed an extensive study of learned helplessness.

(6) Reported the first run of the Annual Monitoring Program.

(7) Done an analysis of quitting as a function of brand last smoked.

(8) Shown that we can distinguish between regulator and nonregulator smokers and that after being deprived, the regulators do indeed try to make up for lost intake.

(9) Shown that acute, but not chronic, administration of nicotine will alter an animal's behavior consistent with the Bertson hypothesis that nicotine raises the pain threshold in rats.

(10) Gotten preliminary indications that we can use a nicotine/saline discrimination task as a tool for studying central nervous system mechanisms associated with smoking.

(11) Acquired a consultant.

(12) Completed a study of stimulus-seeking among introvert vs. extravert smokers.

(13) Completed a study of smoking effects upon learning nonsense syllables.

(14) Effected an arrangement with a university affiliated hospital for injecting nicotine in humans for discrimination studies.

Our failures: We have not (1) Developed a workable technique for unobtrusive monitoring of smoke inhalation patterns. (2) Obtained satisfactory batches of low nicotine

and nicotine fortified cigarettes for a more definitive study of smoke intake regulation. (3) Carried out investigation of nicotine self-administration in rats. (4) Gotten completion reports of funded work by Dr. Robert Weldoillig. (5) Articulated the two-factor theory of smoking behavior.

*Behavioral Research Accomplishments in Detail Smoking and Learned Helplessness—Levy*

Hiroto and Seligman (1975) have reported that college students who were subjected to inescapable loud noise or unsolvable discrimination problems showed deficits in performing subsequent tasks involving escape from loud noise or anagram solution; they were helpless.

Those experimental situations which are effective in producing helplessness are frustrating and stressful. We contend that smoking helps smokers cope with stressful situations; such that smokers perform better in high arousal situations than nonsmokers or deprived smokers. We therefore have hypothesized that smokers will be affected less by a situation devised to induce helplessness than nonsmokers or deprived smokers.

Before beginning data collection using smokers as well as nonsmokers, we conducted a series of pilot studies using approximately sixty nonsmokers. The purpose of the pilot studies was to verify that we could induce helpless behavior in our lab using local college students. As a result of the pilot studies, we modified our procedures considerably. In the final pilot study we had usable data on 23 subjects (12 males and 11 females). The results are summarized below:

Decandent Measures	Treatment	
	Helpless	Control
X Latency to solution (sec.)	47.5	128.9
X No. of failures to solve	6.3	14.1
X Trials to criterion	14.2	110.0

<sup>1</sup> <.05, one tailed t test

Subjects in the helpless group took longer to solve the anagrams, failed to solve more anagrams and "caught on" to the pattern later in the task when compared to the control subjects. Therefore, we were successful in producing a helplessness effect in our lab.

In March we began collecting data on smokers and nonsmokers and now have complete data on 43 subjects. We anticipate completing this study by February, 1978. One problem that has slowed data collection considerably is our requirement that subjects must score at least 115/150 on the Ammons & Ammons Quick Test (a short IQ test). In our pilot work we determined that this cutoff was necessary since subjects with poor verbal skills find it difficult to solve the anagrams used in this study.

*Smoke Inhalation Studies—Levy & Dunn*

During the past year we have been trying to devise a technique by which we can unobtrusively monitor smoke inhalation. Our initial attempt was to have Frank Watson's group construct a piece of equipment modeled after one described in a June, 1967, issue of *Science*. This apparatus sensed changes in the antero/posterior diameters of the rib cage and abdomen to estimate changes in lung volume. Unfortunately design problems forced us to abandon this approach.

In cooperation with Dr. Farone, we explored the alternative of using a mercury strain gauge to measure chest expansion during smoke inhalation. We found that chest expansion correlates quite well with volume of inhaled air ( $r=0.95$ ). We can improve this

correlation by adding in a correction factor which takes the person's chest expansion just prior to inhalation into account. A major shortcoming of the strain gauge is its relative insensitivity.

Having not found a workable technique for monitoring smoke inhalation patterns nonobtrusively, we called in Dr. Eli Fromm, a bioelectronics expert from Orexel University. Dr. Fromm proposed using an impedance pneumograph, involving pot-holder-like woven silver electrodes placed in sub-axillary positions on the chest. These electrodes are part of an impedance sensing electronic circuit. Previous work by Fromm and others had established that the volumetric changes associated with respiration altered the thoracic impedance. We have been unable to develop this technique to even an evaluative stage, since the voltage change, although discernible, has not been sufficiently distinguishable from background noise.

We continue to actively search for usable technology.

#### *Regulator Identification Program—Levy*

We have hypothesized that some people smoke for nicotine, and that these people try to obtain a relatively constant amount of nicotine from their cigarettes. On the other hand, people who do not smoke for nicotine would not be expected to regulate. We have been conducting studies to identify those people who are nicotine regulators among our smoking student population.

In our most recent study we wanted to determine if regulators and nonregulators would respond differently to smoke deprivation. After smoking high and low delivery cigarettes at home for two weeks, fifteen smokers came to our lab on four separate occasions. Each subject smoked the high and low delivery cigarettes under nondeprived and overnight deprived conditions. Based upon "at home" smoking data, 11 of the smokers were determined to be regulators, while 4 were nonregulators. When these subjects came to the lab and smoked under more controlled conditions, we found that 9 of the regulators obtained more nicotine from their cigarettes when overnight deprived than when nondeprived. On the other hand, only 1 of the 4 nonregulators responded to smoke deprivation by obtaining more nicotine from their cigarettes. Thus it appears that regulators and nonregulators do respond differently to smoke deprivation.

#### *Smoking of Low Nicotine Cigarettes—Levy*

We have been trying to obtain cigarettes made from denicotinized tobacco to use in a study which will look for changes in people's smoking behavior when they're shifted to a low nicotine cigarette, with tar delivery held constant. We plan to use a nicotine fortified cigarette made from denicotinized tobacco as our comparison cigarette. We have had problems in getting the nicotine level of the nicotine fortified cigarettes back up to normal.

As part of this study we are trying to see if smokers can easily discriminate the nicotine fortified cigarettes from the low nicotine cigarettes. Forty-eight R&O smokers compared two of these cigarettes, one delivering .40 mg nicotine and the other .87 mg nicotine. Over all smokers no significant differences were found between the two cigarettes. Only three smokers were able to identify unequivocally the nicotine fortified cigarette as producing more inhalation impact. We concluded that there were no dramatic organoleptic differences between these two cigarettes, even though the nicotine fortified cigarette delivered twice as much nicotine.

#### *Nicotine as a Mitigator of Stress—Levy*

During the past several months we have been looking at the effects of nicotine on post-stress learning deficiencies in rats. In one study using 24 rats we found that an injection of nicotine (.2 mg/kg) five minutes prior to a shock avoidance task in a shuttle box significantly increased the rats' latencies (in seconds) to cross the barrier if they had been stressed with a cold swim thirty minutes before. A control condition, identical to the experimental condition except for a warm rather than cold swim, produced no such latency difference. These results are consistent with Gary Benetton's finding that nicotine increases the pain threshold in rats as measured by the tail flick test.

In a second study we looked at the effect of chronic nicotine treatment on rats' shuttle box performance following cold swim stress. We had hypothesized that injecting rats with nicotine hydrogen tartrate (.5 mg/kg) four times daily for six weeks would enhance their ability to cope with stress. In order to test this hypothesis we chronically injected twenty-two rats with either nicotine or saline for six weeks. On test day six rats from each injection condition were stressed with a four-minute cold swim (2°C) and five from each injection condition were given a four-minute warm swim (28°C). Thirty minutes post-swim each rat was tested in a shock avoidance task. Rats that were stressed with the cold swim took significantly longer to cross the barrier in the shuttle box than rats given the nonstressful warm swim. Rats chronically injected with nicotine that were stressed with a cold swim did not perform better than the saline injected cold swim rats. In addition, the behavior of saline- and nicotine-injected warm swim rats did not differ. Thus the latency effect produced by nicotine under acute conditions was not produced under chronic conditions.

#### *Nicotine Discrimination Learning by Rats—Levy*

During the past few months we have been exploring the feasibility of using a nicotine-saline discrimination task as a tool for studying the central nervous system effects of nicotine. To date, seven rats have been trained to discriminate a nicotine injection (.2 mg/kg) from an injection of isotonic saline. These rats are currently being tested with R-(+)-nicotine (.2mg/kg and 2 mg/kg) as the barbiturate salt to see if the central nervous system effects of R-(+)-nicotine are similar to those of S-(-)-nicotine. Our data suggest that R-(+)-nicotine at a dose of .2 mg/kg is more like saline than S-(-)-nicotine. However, at a dose of 2 mg/kg the R-(+)-nicotine is similar to S-(-)-nicotine.

Another group of eight rats is currently being trained to discriminate nicotine (.4 mg/kg) from saline and will be tested using tobacco alkaloids such as anabasin and nor nicotine.

#### *The Annual Monitoring Study—Ryan*

We completed first Annual Monitoring study, providing the baseline data with which later Monitoring studies will be compared. This research asked a large national panel (N=2711) to rate five cigarette models for strength and acceptability. The cigarettes tested had nominal deliveries of 5, 9, 16, 17, and 21 mg FTC tar, with commensurate nicotine values.

The 13 and 17 mg models had the highest acceptability ratings, the 5 mg model had the lowest acceptability rating, the 9 and 21 mg models being of near-equal, intermediate acceptability. The strength ratings increased

with delivery, the 5 mg being rated weakest and the 21 mg rated strongest.

Of greatest immediate interest was the observation that relative acceptability was dependent on the delivery of the smoker's own brand. Thus, the ultra-low delivery brand smokers (Now and Carlton) gave high acceptability ratings to the lowest test brand, with systematically declining ratings to higher delivery brands; the Merit and Kent Golden Light smokers gave their highest rating to the 9 mg model, with systematically declining acceptability to the higher delivery models, and the full flavor smokers top rated the 19 mg model, with declining ratings to the lower delivery models.

It is impossible to decide from this single test whether smokers have asserted themselves into brand loyalties on the basis of preexisting tastes (i.e., people who like weak cigarettes gravitate towards weak cigarettes by trying available brands until they meet one that fits their taste, while people who like full flavor sample until they end up with a full flavor brand) or whether having been smokers of a certain brand for some time for unspecified reasons they consider other deliveries less acceptable to the extent that they differ from their accustomed brand's delivery.

#### *Stimulus Seeking Among Smoker and Non-smoker Introverts and Extraverts—Ryan*

We completed study of stimulation-seeking behavior among smoker and nonsmoker introverts and extraverts. The data suggest that nonsmoker extraverts seek more stimulation than nonsmoker introverts as Eysenck has suggested. It had been hoped that smoke extraverts would respond differentially when allowed to smoke and when smoke deprived, in that the effects of nicotine in the system would cut down on the smoker's need for external stimulation, but the differences were inconsequential. Whether allowed to smoke or deprived of smoke, the smoker extraverts sought about as much stimulation as the nonsmoker extraverts.

#### *Smoking Effects Upon Learning Nonsense Syllables—Ryan*

We completed study of effects of smoking low nicotine and moderate nicotine cigarettes on the learning of nonsense syllables and words. The data fail to substantiate the hypotheses that smokers would be worse than nonsmokers, or that smoking moderate delivery cigarettes would retard rote learning more than smoking low delivery cigarettes. The observed smoke differences are best attributed to chance.

#### *A Theoretical Model of Cigarette Smoker Motivation—Ryan*

We developed theoretical position relating total daily cigarette consumption to two types of stimuli: internal stimuli caused by deficits or surfeits of nicotine (or some unknown smoke components) and external stimuli which habitually trigger or inhibit smoking regardless of internal cues.

The adoption of this point of view by members of the staff will lead us to recognize that apparent failures of nicotine compensation model may not in fact be failures at all, and that nicotine compensation is a real phenomenon which is masked by the fact that smokers smoke many cigarettes out of habit rather than need. We began testing the theoretical model to determine the extent to which situational cues rather than nicotine need determine the smoking behavior of college students. This study is in progress.

*Establishment of an Electroencephalographic Laboratory—Gullotta*

The major objective this year has been to set up a functioning psychophysiology laboratory. Setting up the physical work space was relatively easy, since it merely required the modification of the existing sound-attenuated chamber.

Selecting and acquiring the equipment is taking more time. A Grass model 780, EEG machine, with eight EEG channels and five polygraph channels was selected. This instrument will be capable of monitoring many physiologic functions including EEG, ECG, heart rate, respiration, temperature, etc. It is scheduled to be delivered in mid-January 1978. Grass has loaned us a machine for the interim. A research model photostimulator has also been ordered from Grass. It will be used in visual evoked response studies.

A techtranix-5111-storage-oscilloscope and a C-5A oscilloscope camera has been received. They will be used both for general laboratory procedures and to provide graphics for the computer system.

A computer system has been decided upon and ordered. After a great deal of investigation, thought and discussion, a Data General Micro Nova system was selected. It will be interfaced with the Level 6 and Sigma 9 systems and will provide the capability for planned investigations.

We have developed and obtained legal approval for an informed consent form. This was necessary in order to bring students into the laboratory for experiments involving psychophysiological monitoring.

Periodic trips to the EEG laboratory at MCV were undertaken to gain experience in recording the EEG patterns in humans. The staff at MCV has proven extremely cooperative and helpful in this regard. It is also anticipated that this source will be of potential use on future research projects.

To date, over twenty EEG recordings have been performed on approximately a dozen PM R&O employees as preliminary work.

*A Heart Rate Study—Gullotta*

This study was undertaken to assess the effects of two experimental cigarettes on heart rate. The two cigarettes were both denicotinized Marlboro-like blends, the experimental version having had nicotine citrate sprayed on before making. The control delivered approximately 0.3 mg and the experimental 0.7 mg of nicotine. Tar content and RTO did not vary.

R&D employees were used as subjects. In the experiment, they smoked the two experimental cigarettes and regular Marlboros. In addition, controls consisting of puffing on an unlit cigarette and not inhaling a lit cigarette were employed.

With 10 subjects, the heart rate changes were seen to be positively related to available inspired nicotine; the greatest increment occurred on smoking regular Marlboros, the least change occurred under control (no smoke) conditions and an intermediate change occurred with the 0.3 mg nicotine cigarette. Results with the 0.7 mg nicotine experimental cigarette were ambiguous. Additional data are being collected.

*Exit Cigarette Brands—Ryan*

Available data based upon the exit brand (last brand smoked) of people who have quit smoking (nonmenthol filter cigarettes within a year prior to being pulled, suggest that the proportion of such quitters who smoked low delivery brands is about twice as great as the market share of those cigarettes would indicate.

Our data do not enable us to determine whether this means that low delivery cigarettes enable smokers to wear themselves from nicotine, or whether it means only that people who are concerned about their health (and so smoke low delivery, "safer" cigarettes) are more likely to quit smoking than are those who are not concerned about their health. The study, rather than providing answers, prompts us to ask more specific questions.

*Acquisition of a Behavioral Research Consultant*

Prof. Gary Bernston of Ohio State University has become affiliated with our program as a consultant. Prof. Bernston's own research program has been partially funded by PM R&O for several years.

*Other Extra PM Work Promoted by PM R&O*

(A) Dr. Rosecrans at MCV—With protracted intervals between steps, we reached the point in November of granting a nominal sum of money to underwrite a study of human ability to discriminate between nicotine and no-nicotine bodily states. The delays have resulted from the reluctance of the MCV Ethics Committee to approve the infection of nicotine in human studies. The initial study will be of smoke inhalation where control and experimental cigarettes are minimally distinguishable organoleptically although differing in nicotine deliveries.

(B) Prof. Bernston at Ohio State—With supportive PM R&D funding, this investigator has completed two studies in 1977. He reported to the Annual Meeting of the Psychonomic Society that nicotine (0.16-0.50 mg/kg) greatly reduced pain sensitivity to thermal stimulation in the rat as measured by the tail-flick test and the hot-plate test. This finding and preliminary findings of other studies suggest that nicotine may selectively reduce visceral pain without reducing somatic sensitivity.

Prof. Bernston has obtained authorization by the Ohio State University Ethics Committee to pursue this line of investigation with humans, with implicit approval to inject nicotine. We are requesting that he conduct the nicotine discrimination work originally discussed with Rosecrans, in view of his capability of injecting nicotine in humans.

In a study with cats he found evidence that the basic sensory sensitivity of the animals remained unaltered by nicotine, as well as their motor responsivity, such that previously reported changes in aggressivity induced by nicotine now appear more clearly to be centrally mediated.

(C) Or Kazlowski at Wesleyan University—This investigator reported completion of a study partially supported by PM R&D funds (1976) in which he observed no changes in puffing behavior as a function of experimentally induced changes in buccal pH.

To: Dr. T. S. Osden

From: J. I. Seeman

Subject: Nicotine Program

Date: March 15, 1978

This summary and evaluation represent the cumulative influences of a number of discussions with Carolyn Levy and Ted Sanders and myself. However, these conclusions may not in every respect correspond directly to the ideas of CL and TS.

An effective nicotine program must include both peripheral and CNS bioassays. The former are being preferred under contract, and we must await the full reports be-

fore being able to make conclusions either about the results or the testing program itself. It is clear that CNS studies represent the most complex, state-of-the-art concepts. Ultimately, the isolation and characterization of the nicotine CNS receptors are the major goal. Many steps must come first. These include (1) pharmacological location of sites of nicotinic action using both cannulae and various tissue sections; measurement of electrochemical activity following drug administration; (3) various techniques including photoaffinity labeling and binding studies as aids at receptor isolation (4) receptor identification and characterization (against and antagonist activity).

Currently, Abood has begun work involving a "prostration syndrome." He is initiating synthetic work aimed at preparing suitable photoaffinity labels. Goldstein, at the present, has not applied his "bag of opiate tricks" in the nicotine area and is doing only T-maze behavioral studies. He is unquestionably going to pursue the nicotine-receptor question vigorously.

Ultimately, we and others (perhaps we have not considered in detail "the others" except for Abood and Goldstein) will be successful in the "steps." What can be requested at the present in terms of "outside help" is clearly limited by what is available.

I believe that we should rely on C.L. for all behavioral studies. This will undoubtedly require more rats and testing equipment. However, the behavioral work is key to the testing program.

Binding studies with DeVries at MCV can be initiated. He is currently interested in a variety of nicotine CNS receptors. Metabolism work which Castagnoli would give us information with respect to biological stability of any analogues.

For the present, I cannot believe that "we should cancel" any opportunities with Goldstein who is clearly by far the most sophisticated experimentalist and theoretician of the outside investigators. I have some suggestions relative to our initial response to his current request for materials.

In summary, I believe that the key note in this memo is that we must devise not a shopping list for todays needs but a policy for the program as a whole.

To: Dr. T. S. Osden

From: J. I. Seeman, C. J. Levy, and E. B. Sanders Nicotine Program: Specific Implementations

Date: March 31, 1978

The memo of March 21, 1978 to you from us outlined in detail the long-term nicotine program, including sections on (a) receptor isolation, identification and characterization; (b) pharmacokinetics; (c) CNS testing (behavioral aspects); (d) peripheral bioassays; (e) synthetic organic chemistry; (f) chemical property evaluations; and (g) smoking studies.

The purpose of this memo is to specifically detail the additional experiments needed in the immediate future, with the assumption that projects already in progress will continue at their present rate.

*A. CNS Behavioral Testing*

Nicotine discrimination, self-administration and tolerance studies will enable us to examine the cueing and reinforcing properties of nicotine and nicotine analogues in rats. These are the state-of-the-art bioassays for central nervous system activity which we believe will serve as useful models of human

smoking behavior. Implementation will require an additional 400-500 sq. ft. of laboratory space for animal housing and testing facilities, one-half technician, one B.A. professional, and \$15,000-20,000 of capital expenditure for housing and testing purposes.

T. S. Osdone

Nicotine Program: Specific Implementations  
March 31, 1978  
Page 2

#### B. Molecular Basis of Nicotine Pharmacology

We must begin to gain expertise in experimentation dealing with nicotine receptor technology. Initial studies will involve the determination of nicotine and nicotine analogue binding with various biological membranes. Studies of this type are currently being performed at a number of academic institutions. For example, Prof. George DeVries has contacted us suggesting a possible collaboration along these lines; he will conduct the biological studies on our nicotine analogues. In this particular case, no request for financial support has been made. It is possible that other collaborations may require such aid. We suggest initiating these experiments on a modest scale through the aid of outside collaborations. Should results be particularly interesting and important, we can then consider in-house experimentation.

#### C. Nicotine Analogue Preparation and Chemical Evaluation

This work involves the preparation of the analogues and physical and chemical evaluation of their properties. Significant continued reliance on the Analytical Division is necessary, and in certain areas, increased responsibilities by them will be necessary. A.B.S. professional is necessary to serve as back-up to this work.

Please note that surgical procedures will be required for certain of the behavioral studies.

It is important to reemphasize that better communications with the peripheral bioassay evaluation group in Germany must be established, and that shorter response time for our questions and our bioassays is essential. Additional and/or replacement bioassays must be required by this group.

Finally a decision with regard to collaboration with Dr. Abood is in order.

RESEARCH AND DEVELOPMENT FIVE YEAR  
PLAN—1979-1983  
September 1978

\* \* \* \* \*

#### IV. Fundamental studies of the product and its users

Fundamental research at R&D consists of long-range investigations aimed at discovering basic scientific principles about the nature of our product, its components and its users. We seek essential knowledge which can be applied to the practical problems of cigarette design.

Objectives	Strategies
To extend our knowledge of nature of tobacco and smoke.	Continue to study the precursor/product relationships in tobacco and smoke Analyze the chemical interactions of smoke on physiological systems Study the relationship of cigarette paper composition to smoke delivery, principally carbon monoxide and nitrogen oxides Continue to study smoke flavor and how to manipulate it to achieve desired subjective response

Objectives	Strategies
	Investigate tobacco characteristics that affect expandability Refine analytical methods for tobacco and smoke components, using the most advanced instrumentation possible Evaluate changes in tobacco expandability and filling power as a function of moisture-absorbing utility
To extend our knowledge of the nature of water in tobacco.	
To extend our knowledge of the nature of combustion and pyrolysis.	Refine models of cigarette combustion Apply cigarette combustion and pyrolysis models to the design of cigarettes
To control gas phase constituents ...	Continue research on control of gas phase constituents including carbon monoxide, nitrogen oxides, hydrogen cyanide, and acrolein Learn more about smoke aerosol and how to manipulate it to improve product quality
To identify the smoke components sustaining cigarette smoking and describe the motivational mechanism.	Monitor changes in smoking behavior as a function of changes in the composition of smoke

We will continue to coordinate multidisciplinary research to determine the role of water in tobacco filling power. Specifically, we hope to learn how to manipulate the water in tobacco in order to change and control filling power. Emphasis will be placed on water exchange processes which occur in ordering, reordering and expansion. Information developed from this program will be applied to improve the economics of our manufacturing processes.

In our program on cigarette pyrolysis and combustion, we seek knowledge which will contribute to the design of cigarettes with controlled delivery. We are investigating the mechanics of how specific compounds are formed in smoke. Experiments are being conducted in the kinetics of smoke generation as a function of the physical and chemical properties of the cigarette.

We have recently intensified investigations of the physical and chemical properties of smoke aerosol. This work is relevant to filtering specific tar elements and modifying subjective response to smoke. By altering filter geometry, we have noted a change in subjective response without changing tar delivery. We will continue to explore ways of changing filter design and hence the pattern of mainstream smoke.

Nicotine may be the physiologically active component of smoke having the greatest consequence to the consumer. Therefore, we are studying the differences in physiological effects between nicotine and its analogues to determine the mode of nicotine action. If acquired, this knowledge may lead to a substance which will produce the known desirable nicotine effects and greatly diminish any physiological effects of no benefit to the consumer.

#### Fundamental Studies of the Product and Its Users (continued)

(From Philip Morris, Richmond, Virginia)

To: Dr. T.S. Osdone

From: W.L. Dunn

Subject: Plans and Objectives—1979

Date: December 6, 1978

All of the effort of the Behavioral Research Laboratory is aimed at achieving this objective: To understand the psychological reward the smoker gets from smoking, to understand the psychophysiology underlying this reward, and to relate this reward to the constituents in smoke.

The rationale for the program rests on the premise that such knowledge will strengthen Philip Morris R&D capability in developing new and improved smoking products.

In pursuit of this knowledge, three somewhat independent lines of investigation are underway:

1. The effects on nicotine and nicotine-like compounds upon animal behavior.
2. The effects of smoke and smoke constituents upon the electrical activity in the human brain.
3. The effects of changes in smoke composition upon puffing behavior, inhalation behavior and descriptive statements by the smoker.

#### Animal Behavior Studies (Levy, Young and Roussey)

A major objective of the comparative research effort is to develop behavioral tests which are sensitive to the effects of nicotine and can be used to screen nicotine analogues for central nervous system (CNS) activity. The studies which aim to meet this objective as well as the objective of learning more about the reinforcing properties of nicotine are described below.

1. *Nicotine Discrimination.* In this test rats are trained to discriminate nicotine injections from saline injections based upon the CNS effects of the injections. We have been using this test to screen a variety of nicotine analogues and plan to continue doing so during 1979. This test is important because it allows us to determine if test compounds produce cues (subjective effects?) similar to those of nicotine.

2. *Tail Flick.* Nicotine has been shown to have analgesic properties as measured by the tail flick test, and apparently this effect is centrally mediated (Sakley and Bertson, 1977). We have completed some tests using this procedure and will continue doing so in an effort to determine if it can be used as a preliminary quick and objective screen for analgesics.

3. *Monitoring of Motor Activity.* Stolerman, Fink and Jarvik (1973) have reported that the depression of spontaneous locomotor activity can be used to monitor the development of tolerance to nicotine in rats. We plan to explore the feasibility of using a similar test to screen analogues for nicotinic activity and also to evaluate cross tolerance between nicotine and nicotine analogues.

4. *Prostration Syndrome.* A prostration syndrome in rats has been described by Abood, Lowy, Tometsko and Booth (1978) which appears to be mediated by central noncholinergic nicotinic receptors. This simple behavioral response is elicited by the intraventricular administration of 2-10 µg of (-) nicotine bitartrate. We plan to implant rats with cannulae in the lateral ventricles and then inject a variety of nicotine analogues into the brain to determine if they elicit the prostration syndrome.

5. *Nicotine Self-Administration.* A few recent studies have demonstrated that intravenous nicotine is reinforcing to rats since they can be taught to self-administer it. (Hanson, Ivester and Morton, 1977; Lang, Latiff, McQueen and Singer, 1977). We plan to replicate these studies to determine a) if this behavior can be blocked by cholinergic antagonists, b) if it is dose-responsive and c) if it will extinguish rapidly when saline is substituted for nicotine. We feel that this paradigm may be a useful animal model of human smoking behavior.

6. *Rat EEG.* If time permits, we plan to collect some preliminary data in which the dependent variable will be the rat's ongoing EEG activity. The purpose of this type of study will be to a) compare the effects of nicotine on the rat and the human brain and b) determine if we could use data of this type to

evaluate the nicotinic properties of nicotine analogues.

*Electroencephalographic Studies (Gullotta and Spilman)*

The major objective of all of the studies to be conducted in the neuropsychology laboratory is to understand the interrelationships between cigarette smoking and the human brain. In so doing, we hope to further elucidate how and why people smoke. The studies outlined below are directed toward achieving these goals.

1. *The Effects of Cigarette Smoking on the Early, Late and After-Discharge Components of the Visually Evoked Response.* To date data accumulation is approximately eighty percent completed. We should finish running subjects in January. Statistical analysis of the results will be a lengthy process, but it is anticipated that the analyses will be completed by the end of the first quarter of 1999. A completion report will be written at that time.

2. *A Search for Other Evoked Responses which are Sensitive to Cigarette Smoking.* We wish to identify a number of dependent measures which change following cigarette smoking. Evoked responses seem to be a fruitful area of research. The precise nature of the research we will engage in will depend on the results of the current VER study; however, three avenues of investigation seem likely:

A. *Visually Evoked Responses from Association Cortex.* We are currently studying VERs recorded from the primary sensory cortex. However, VERs may also be recorded from other areas of the brain, including the "association cortex." Evoked responses recorded from association areas are particularly sensitive to and modifiable by behavioral variables such as attention, learning and cognition. Since cigarette smoking has been suggested to influence these variables, association VERs might provide important information about the neuronal circuitry involved.

B. *The Auditory Evoked Response.* The evoked response to pure tones delivered to the auditory system is quite sensitive to pharmacological intervention. Several studies on the effects of cigarette smoking or nicotine administration on the AER has been done, but the results are ambiguous. Some researchers find no changes in AERs following smoking or nicotine administration, whereas others report decreases. It is important to know whether and how this measure is influenced by cigarette smoking.

C. *The Somatosensory Evoked Response.* Very little evidence exists regarding the effects of cigarette smoking or nicotine administration on the somatosensory evoked response to either electrical or vibratory stimulation. This response, however, seems to be very sensitive to many classes of pharmacologic agents and behavioral states. It is possible, therefore, that the SER might be a very responsive index of cigarette smoking.

3. *The Effects of Cigarette Smoking on the Electroencephalogram.* Numerous studies have shown that both cigarette smoking and nicotine administration result in EEG activation, followed at various intervals, by EEG synchronization. However, those studies employing cigarette smoking as the independent variable have certain methodological shortcomings which need to be rectified. We propose replications of these studies using more appropriate controls.

4. *Long-Term Smoke Deprivation and the Electrical Activity of the Brain.* In terms of the electrical activity of the brain, there can be

little doubt that smokers and nonsmokers are very different. It is also true that the brains of deprived smokers are quite different from the brains of both nondeprived smokers and nonsmokers.

Were the brains of smokers always different from nonsmokers, or did the brains change in some fashion following experience with tobacco? These are difficult questions to answer. Yet, some insight into these questions might be gained by a study which followed quitters over long intervals. Such a study would necessarily be a long-term longitudinal endeavor. We would need to solicit volunteers who were intending to quit, accumulate prequitting baseline CNS measures, then restudy these individuals periodically for as long (within reason) as they remain quitters.

5. *A Comparison of Three Routes of Nicotine Administration on Physiologic Function.* We have discussed this study with Dr. Arthur Ryan and he has agreed to lend us the medical personnel necessary to carry out this study. In addition he has agreed to be available for consultation as needed.

In essence, this study involves a comparison of three different methods of nicotine administration: inhalation, ingestion, and intravenous injection. The dependent measures would probably be the EEG, VER, heart-rate, blood pressure, and blood nicotine levels. A small group (five or six) of subjects will be used and will be brought into the laboratory between six and eight times. Dependent variables will be measured prior to and at several intervals, subsequent to nicotine administration.

This experiment should help answer several important questions. For example, what is the relationship between blood nicotine levels and CNS activity? How soon following a given method of nicotine administration are effects seen in the CNS, and for how long? How are the human studies employing cigarette smoking similar to or different from animal studies employing nicotine injection?

*Smoking Behavior Studies (Ryan and Easut)*

The focused objective of this area of study is to relate the intake of nicotine and its presence in the body to the occurrence of other behaviors, including subsequent smoking behavior.

Question 1. *To what extent is the presence of nicotine in smoke detectable by smokers?* To answer this question we need to conduct two types of studies and make two types of measurement. The study types will be (A) an absolute threshold study, in which smokers will be given "nicotine-free" and very low nicotine cigarettes and asked whether they contain nicotine. The subjects' ability to verbalize the presence of nicotine is the first type of measurement. As a second type of measurement we will look for a change in heart rate (HR), which is customarily associated with nicotine intake in most deprived smokers. It is possible that there would be a physiological (HR) effect at a level different from the level at which verbalization takes place.

Study (B) will be a difference threshold study, in which we try to find how small an increment (or a decrement) of nicotine in smoke can be detected as an increase (or a decrease) by the smoker. If the just noticeable difference (JNO) is small, the nicotine delivery of cigarettes may be expected to play a more important role in the evaluation of cigarette acceptability than if the just noticeable difference is large. Again we will make 2 types of measure—subject ratings

that this cigarette has more nicotine than that cigarette, and a monitoring of heart rate. The heart rate changes should not be important in this case, for the subjects will be getting nicotine from each cigarette. However, we may see differential HR increases while smoking the first of the two cigarettes being compared.

Question 2. *To what extent is the ability to detect the presence of nicotine in smoke masked by other smoke components?* There are three ways to answer this question: One is to present the nicotine without the smoke, a second is to hold the nicotine delivery constant while varying the quantitative amount of other smoke components (e.g. FTC tar), and the third is to add qualitatively different smoke components (e.g. menthol or anise flavoring). Since all three approaches involve novel manipulations in the smoke (aerosol) delivered to the smoker, we anticipate that the year's efforts devoted to this question will be consumed in the experimentation required to develop the cigarettes.

Question 3. *To what extent does the presence of detectably more or detectably less nicotine in smoke affect the acceptability of low delivery cigarettes?* This question is related to the optimal nicotine/tar ratio, a problem we have addressed before at higher delivery levels. Implicit in the second question was the assumption that nicotine's effect may be different at different tar deliveries, for its detectability is expected to be different depending upon the masking effect of the tar borne flavors. Consider the following table of 85 mm brands arranged by FTC tar delivery:

Product	Nicotine	FTC Tar	Nicotine/ Tar
Carillon	20	1.5	.125
Now	22	1.8	.122
True	44	4.8	.092
Decade	45	4.9	.092
L&M	64	7.4	.086
Tareyton Light	71	7.6	.093
(Kent) Golden Light	71	7.7	.092
Spirit	90	8.0	.112
Merit	66	8.3	.080
Viceroy Xtra Mild	86	9.1	.095
Real	87	9.1	.096
Raleigh Lights	86	9.2	.093
Parliament*	78	9.3	.084
Camel Light	97	10.0	.097
Vantage	87	19.7	.081
Marlboro Light*	82	11.4	.072
Kent	104	12.6	.083
Winston Light	111	13.5	.082
Doral	113	13.8	.082
L&M	101	14.7	.069
Tareyton	101	14.8	.068
Raleigh	102	15.6	.065
Lark	126	17.4	.072
Marlboro*	112	17.3	.063
Camel	138	18.8	.073
Winston	141	19.6	.072

The table suggests that Philip Morris brands (asterisked) have lower nicotine/tar ratios than do other brands with about the same FTC tar delivery. Marlboro has the lowest ratio on the list. Marlboro Lights has the lowest ratio among brands delivering less than 14.0 mg tar, and Parliament has the second lowest and Merit the lowest ratio among brands delivering less than 10 mg tar. The table also suggests that nicotine/tar ratios go up as tar goes down, and that our competitors' brands such as Golden Light, Now and Spirit (in test market) seem to be higher in nicotine delivery than we would otherwise expect from our own experience with low delivery cigarettes. The reason for the low PM ratios seems to lie in tobacco processing procedures. The reason for the high ratios at low tar may be that high efficiency filters catch relatively more tar than



nicotine when compared to low efficiency filters, and that this effect is enhanced by air dilution. We suspect that in some cigarettes the use of high alkaloid blends may also be an important contribution to the higher ratios.

It appears therefore that the mechanics of cigarette engineering and the deliberate decisions of our competitors are such as to suggest that *high* nicotine/tar ratios be used at ultra low tar levels. But traditionally our brands have been successful with low ratios. Whether this will bear true at a very low FTC tar delivery as it has been heretofore at higher deliveries, we do not know. We have heard some people suggest that low tar cigarettes may need nicotine supplements to be rated acceptable. On the other hand, we have heard others suggest that people who smoke low tar products want as little tar and nicotine as they can get, which suggests that a low nicotine/tar ratio might be preferred. Still others feel that ratio size won't make any difference at all, that "all you have to do" is get the smoker accustomed to a cigarette and he'll come to call its characteristics his preferred characteristics.

To shed further light on this problem we will evaluate low delivery experimental cigarettes in the 5-7 mg FTC tar range but with nicotine levels which are discernibly higher than, equal to, and lower than the typical level expected of cigarettes in this range (which would be .53 mg). To determine how much higher or lower we must go, we'll consult the results of the JNO study and the absolute threshold study.

One of the reasons for conducting the JNO study now becomes apparent, for it would make no sense to ask smokers whether they preferred cigarette A or cigarette B if A and B could not be told apart.

**Question 4. Tar delivery being the same, what are the behavioral consequences of smoking low nicotine rather than high nicotine cigarettes?**

This question will be answered by conducting a series of shift studies using cigarettes of similar low tar but differential nicotine deliveries. The low nicotine delivery will ensure that total nicotine in the system remains at or near the nicotine need threshold, thus maximizing the proportion of the day's cigarette consumption which is smoked out of need and minimizing the nicotine augmentation from those cigarettes which are smoked out of habit.

The results may shed light on the manner by which nicotine control is achieved.

**Question 5. To what extent do "mouthfeel" factors affect the taste and acceptability of cigarettes?** We begin to answer this broad question by asking a narrower one: To what extent does salivation affect the taste of cigarettes?

We ask the question because low tar triers often complain that low tar products taste "hot and dry." This may mean that the smoke is in fact hot and dry, but it is more likely to mean that the smoker's mouth is hot and dry—which suggests that salivation could affect the sensation.

We will investigate this by sampling the saliva quantity present in the mouth during and after smoking cigarettes of differential delivery. Both nonmenthols and menthols will be used as it is possible that menthol may affect salivation.

If saliva flow is found to be reliable to delivery, then we can investigate compounds which may counter the effect.

**Annual Monitoring Study.** We have twice presented a large national panel with five widely differing types of cigarettes to be

rated on acceptability, seeking to find whether low delivery cigarettes are becoming more acceptable. So far the evidence, based on the changes from 1977 to 1978, is slim. We will repeat that test in the spring of 1979, examining changes since '78 and since baseline data in '77.

**Diary Study.** We will finish our first diary study during January, '79. Only data analysis and final writing remains to be done. It is possible that we will employ this technique again, but with fewer subjects selected from a nonstudent population.

**Inhalation Studies (Dunn)**

We have failed to find convincing evidence of regulation of smoke intake when observing number of cigarettes smoked, puffing patterns, etc. Nor have we found such evidence when looking at inhalation measures in the laboratory. Nevertheless there are compelling reasons to suspect that the smoker does accommodate his smoking behavior to smoke composition. We suspect that the regulation occurs in inhalation patterns and that the regulation was obscured by the laboratory conditions under which we made our earlier observations. We did, in fact, establish that the smoker has great latitude in altering intake at the inhalation level. Inhalation is the final volitional act whereby the smoke is transported from the mouth to the site where smoke constituents cross the tissue barrier to enter the bloodstream.

Our working hypothesis remains that the smoker does alter inhalation in response to cues of smoke composition and that these alterations can be observed under natural smoking conditions if recording procedures are made sufficiently unobtrusive.

Our objectives for 1979 are two-fold:

1. To complete development of an electronic recording device for continuous, unobtrusive monitoring of smoke inhalation (collaborative with Electrical Engineering).
2. To apply the recording device to the investigation of smoke inhalation patterns and those variables which influence them.

We have established the following criteria to be satisfied before the device is judged acceptable:

1. Measures are demonstrated linear within operating range.
2. Measures can be calibrated with spirometer.
3. Baseline drift over 6 hr. period controlled or compensated.
4. Extraneous variables controlled.
5. Monitoring can run continuously for 6 hours.
6. Body movement error minimized and residual effect randomized.
7. Smoke laden inhalation peak is labeled.
8. Obtrusiveness judgements not distorting smoking behavior.

We will initiate the following sequence when the device becomes available:

**Preliminary Exercises**

Procedural refinements and development of criteria for subject's habituation to device.

**Study 1 (N=4)**

Establish Smoker's Inhalation Profile in terms of:

1. Inhalation volume
2. Retention time
3. Depth (Volume/Vital Capacity)
- Σ daily inhalation volume
5. Puff interval

6. cigarette interval

**Study 2 (N=4)**

Investigation of state variables influencing profile parameters:

1. Heart rate
2. Heart rate Δ
3. Preceding cigarette interval (controlled and uncontrolled)

**Study 3 (N=4)**

Inhalation profile changes as a function of smoke composition changes:

1. Nicotine varied—tar constant
2. Tar varied—nicotine constant

To: Dr. T.S. Osden

From: W.L. Dunn

Subject: Plans and Objectives—1980

Date: January 7, 1980

In our 1979 Plans and Objectives report we stated that there were three somewhat independent lines of investigation underway. These were:

1. The Comparative Psychology Program—Studies of the effects of nicotine and nicotine-like compounds upon animal behavior.
2. The Electroencephalography Program—Studies of the effects of smoke and smoke-constituents upon the electrical activity of the human brain.
3. The Experimental Psychology Program—Studies of the effects of changes in smoke composition upon puffing behavior, inhalation behavior and the judgmental statements of smokers reacting to those changes.

These three programs are being continued through 1980.

We are adding a fourth area of investigation this year:

4. The Social Psychology Program—Studies of cigarette smoking as a psychosocial phenomenon. Sandra Dunn, Ph.D., Research Psychologist, will be responsible for this new program.

Our aim in this new program will be to contribute to the understanding of how cigarette smoking and the social process influence one another. We will be interested, for example, in how social change effects changes in the behavior, attitudes and self-perception of the smoker, and how, conversely, cigarette smoking can have psychosocial consequences through its manifest involvement in the social situation, and also through its central-nervous-system-mediated effects upon the coping abilities of the smoking social participant.

Details of the three original lines of investigation follow. It is premature to set down concrete plans for the social psychology program. Our initial efforts in 1980 will be to formulate those plans.

**1. The Comparative Psychology Program—Levy Replacement, Carron and Allen**

The two major objectives of the comparative psychology program are 1) to develop and use animal behavior tests to screen nicotine analogues and 2) to learn more about the reinforcing properties of nicotine. Studies designed to meet these objectives are described below.

**Nicotine Discrimination**

In this test rats are trained to discriminate nicotine injections from saline injections based upon the CNS effects of the injections. We have been using this test to screen nicotine analogues and plan to continue doing so during 1980 because it has proven to be an extremely sensitive and reliable test.

**Tail Flick**

Nicotine has analgesic properties as measured by the tail flick test (Sahley and

Berntson, 1977). We have done extensive testing of (-) and (+)-nicotine using this test. Unfortunately the data were highly variable due to the rats' severe agitation after the nicotine injections. During 1980 we plan to administer nicotine and nicotine analogues intraventricularly in an effort to obtain more reliable data.

#### *Prostration Syndrome*

A prostration syndrome in rats has been described by Abood and his coworkers (1978). This response is elicited by rapid intraventricular administration of 2-10 µg of nicotine. We have begun to routinely administer nicotine and nicotine analogues intraventricularly and to rate the resultant prostration. During 1980 we plan to continue using this test to screen analogues. In addition we plan to begin video taping the test sessions, and (in collaboration with F. Gullotta) record from the dorsal hippocampus during testing.

#### *Place Preference*

Mucha and Van der Kooy (1979) have reported that a place preference paradigm may be used to demonstrate the rewarding properties of morphine. We plan to use a similar paradigm to examine the rewarding effects of nicotine. Rats will be given nicotine injections in one distinctive environment and saline injections in another distinctive environment for several days. Following this training procedure, the rats will be given a choice between the two environments, and the time they spend in each will be the dependent variable. If the rats spend more time in the environment paired with the nicotine injections, this will suggest that the nicotine was reinforcing to them.

#### *Nicotine Self-Administration*

If the reinforcing properties of nicotine cannot be readily demonstrated using the place preference paradigm described above, we will try to get rats to self-administer nicotine through indwelling intravenous catheters using a procedure similar to that of Hanson and his coworkers (1977). If we are successful in getting rats to self-inject nicotine, we plan to determine a) if this behavior can be blocked by cholinergic antagonists, b) if it is dose-responsive and c) if it extinguishes when saline is substituted for nicotine.

#### *II. Electrophysiological Program—Gullotta and Frankovitch*

We hypothesize for this program that the smoking act is perpetuated by the salutary effect of smoke inhalation upon certain discrete as yet unspecified neural functions. We take as a premise that the effect will be present and observable in the EEG correlates of these neural functions. Our objectives in all of the following proposed studies therefore are to determine 1) if the effect is discernible in any of the various monitorable EEG patterns and if so 2) whether further knowledge of the nature of the effect can be inferred from its EEG manifestation.

#### *Auditory Evoked Potentials and Cigarette Smoking*

This study was begun in late 1979 and should be completed during the first quarter of 1980. It was initiated by reports in the literature which suggest that both nicotine administration and cigarette smoking may influence auditory evoked responses.

In a study using cats as subjects (Guha & Pradhan, 1976) it was found that low doses of nicotine enhanced auditory EPs, while high doses depressed them. In a study using humans as subjects (Friedman, et al., 1974) it

was found that cigarette smoking tended to depress auditory EPs. It is extremely important to further investigate the effects of cigarette smoking on auditory EPs. If cigarette smoking does, in fact, depress auditory EPs, this would imply that nicotine has selective effects on the CNS (recall that several reports have indicated that cigarette smoking enhances visual EPs).

#### *Cigarette Smoking and the Standard Electroencephalogram*

Numerous studies have shown that both cigarette smoking and smoke deprivation affect the EEG. Cigarette smoking results in EEG changes associated with arousal, while smoke deprivation results in the high amplitude, low frequency waves associated with drowsiness.

The EEG studies that have been reported thus far generally fall on one or two accounts. First, most studies have only examined EEG changes occurring over very few cortical areas. Second, the majority of these studies have used rather crude data analysis techniques.

As part of our ongoing program, we have placed electrodes over central, posterior and temporal brain areas and have recorded ongoing EEG activity. We are now in the process of developing a spectral analysis program, which will allow us to perform power spectral density analyses of ongoing EEG data from a number of brain loci under varying conditions of smoking and smoke deprivation.

#### *Central Gating and Cigarette Smoking*

Cigarette smoking appears to have opposite effects on visual and auditory evoked potentials. While visual EPs are enhanced by smoking, auditory EPs appear to be depressed. First, nicotine, rather than being a general stimulant, may be exerting a selective influence on brain structures. Second, perhaps nicotine somehow participates in the gating of information by the brain. This gating phenomenon was eloquently demonstrated in 1959 by Hernandez-Péon and has been often replicated. It could be that visual EPs are enhanced at the expense of auditory EPs.

It is possible that cigarette smoking (via nicotine) allows for selective attention in the visual mode by damping input from other sensory modes. We propose to investigate this possible relationship by using cross-modal evoked potentials. Visual and auditory EPs will be recorded in the same experiment, while attention is varied by instructional set.

#### *Cigarette Smoking and Learning by the Brain*

A number of studies have shown that cigarette smoking may facilitate certain types of learning. The mechanisms by which this facilitation is accomplished remain to be clarified. The following study may shed light on this problem.

When a dim flash of light is presented to a subject, an evoked response is recorded over specific visual projection areas. No responses are recorded from the auditory cortex. If, however, the dim flash of light is repeatedly paired with a tone, an evoked response to the flash alone will gradually develop at the auditory cortex. This type of learning is called classical conditioning and it is the fundamental building block of many "higher" forms of learning.

We propose to study the effects of cigarette smoking on the rate at which an EP develops at the auditory cortex to light flash. If smoking accelerates the rate at which conditioning occurs, these data would help explain

why smoking facilitates certain types of learning.

#### *Cigarette Smoking and Somatosensory Evoked Potentials*

We have two reasons for wanting to investigate the effects of cigarette smoking on somatosensory evoked potentials. First, we wish to find out whether smoking influences this response. No literature currently exists on this topic. Any data gathered would increase our understanding of how cigarette smoking influences brain systems mediating behavior. Second, and more importantly, we wish to investigate the proposed analgesic properties of nicotine.

Animal studies from our laboratory (Levy) and other (Bernston) suggest that nicotine may have analgesic effects on certain types of pain. Analgesics affect somatosensory EPs in known ways. If cigarette smoking influences these EPs in a similar fashion, this would be correlative evidence for cigarette smoking possessing analgesic properties in humans.

#### *III. The Experimental Psychology Program—Ryan and Jones*

*Objective 1:* To gain better understanding of the role of nicotine in smoking.

*First Approach:* To further evaluate the smoker's ability to detect nicotine differences among cigarettes.—The first phase of this research was conducted in 1979, when we found that 9 of 10 smokers could detect nicotine differences (at 6 mg tar levels) if nicotine deliveries differed by 50%. In the second phase of this research we will extend the investigation to cigarettes at the 12 and 17 mg tar levels. These cigarettes have been ordered and should be made in January. We are looking into the possibility of a third phase, in which nicotine detectability is examined at near zero tar levels.

*Second Approach:* Examine smoker preference for nicotine delivery in very low tar cigarettes.—The first phase of this project consists of having consumers rate the strength and acceptability of 6 mg tar cigarettes with detectably different nicotine contents above and below the levels found in normal 6 mg models. Should it be possible to make ultra low tar models with markedly different nicotine deliveries (see above) then a second phase investigation will examine acceptability and strength ratings for cigarettes with detectably different nicotine deliveries at near zero tar. (We understand that M.A.H. Russell is engaged in similar research in England.)

*Third Approach:* Examine the changes in body nicotine content pre and post smoking.—Our theorizing on the role of nicotine suggests that cigarettes will be smoked whenever body nicotine content drops below a certain (unknown) level. We can detect nicotine's presence in saliva, where its concentration probably reflects its concentration in blood and tissues.

We are engaged in systematic investigation of the changes in salivary nicotine content as a function of the time since smoking and magnitude of intake. Our first goal is to find the growth and decay curve of salivary nicotine concentrations after different amounts of smoking. As a second step, we will relate the salivary concentrations to the concentration of nicotine in the blood. We have had preliminary discussion of the latter problem with Dr. Arthur Ryan, in our medical Department, and depending on our ability to identify the salivary growth and decay date, will make a series of blood and saliva concentration measures later in the year.

The exact procedure is as yet undecided, but the data will be gathered from a few volunteer subjects under medical supervision.

Assuming that salivary nicotine concentrations will reflect blood nicotine concentrations, we can then proceed to a fourth stage in the research, relating the easily obtained salivary concentrations to the urge to smoke.

**Fourth Approach:** Identification of two smoking population subgroups, one of which has greater nicotine needs than the other.—We have described these people in the past as compensators and noncompensators, and attempted to define them by their consumption changes when nicotine deliveries were moderately shifted. However, we've had no great success in the identification to date. Now we may have two extra tools to use: commercial PM cigarettes of ultra low tar and nicotine, and salivary nicotine concentrations. Others, principally at Columbia University, have suggested that shifts to ultra low nicotine cigarettes produce the same type of psychological stress behaviors as quitting. We therefore propose a shift study in which smokers are shifted to an ultra low brand, and the key dependent variable becomes the presence or absence of the withdrawal syndrome. Those who show evidence of nicotine dependence and those who do not can then be used to test our hypotheses on the relationship of salivary concentration to smoking behavior.

**Objective 2:** To better understand the mechanisms controlling cigarette acceptability.

**First Approach:** We will continue the *Annual Monitoring of Cigarette Acceptability* for a fourth year. This will exhaust our supply of available cigarettes at 5, 9, 13, 17, and 21 mg tar. It would seem reasonable to change this project slightly in 1981 by adding a 1 mg tar cigarette and dropping the 21 mg model when the next batch of cigarettes is made.

**Second Approach:** We have noted that some cigarettes produce a greater saliva flow than other cigarettes. This may in part be attributed to the role of nicotine and in part to PTO but it appears also in part related to the presence of other flavorings in the smoke (e.g. menthol). We intend to investigate this phenomenon more systematically, examining the effects of RTD, menthol, WS, etc.

#### *Inhalation Studies—Jones*

A method for monitoring respiration has been developed to permit further research on the nicotine titration hypothesis. The question has been asked: When given cigarettes with differing nicotine deliveries, do smokers alter their smoking behavior to regulate or "titrate" the amount of nicotine taken up via inspiration of smoke? The Respirace Calibrator will be used to address this question, investigating whether smokers alter inhalation patterns when smoking cigarettes with differing nicotine deliveries.

In a series of preliminary trials using 5 subjects, respiratory transducer recordings have been shown to correlate with spirometer readings on the order of .92+, including readings taken up to five hours after calibration. The relationship consistently has been identified as linear. We have isolated several variables which influence the accuracy of the measurements, and they are being controlled—positioning of the tunic on the abdomen and rib cage, posture when taking the readings, slippage of the tunic etc.

Several other variables are currently under investigation.

Plans for 1980 are as follows:

1. Further procedural refinement of the present system. A study of the sensitivity of

the calibrator to gain values is planned, as well as development of criteria for the subject's habituation to the device.

2. Procedural refinement for the mobile apparatus which is on order for spring of 1980. These investigations will parallel the work that has been done on the present system, determining the accuracy of the recordings as compared with a standard, identifying extraneous variables and working toward their control, investigating baseline drift across a single day and the variability between days.

3. Application of the mobile Respirace to research on the nicotine titration hypothesis as detailed in Plans and Objectives, 1979.

Dr. T. S. Osedene

M. C. Bourlas distributed to R. Sellman et al.—

Analytical Research Division—1980 Plans and Objectives

Date: January 16, 1980

A summary of the major Plans and Objectives for the Analytical Research Division is presented below. A more detailed description may be found in the accompanying memos.

The establishment of basic, fundamental research programs and the continuation of these programs to the applied and development stages will be a primary goal for the Analytical Research Division. In addition and of equal importance will be the continuation of providing technical service to the Research and Development staff, the PM Leaf Department as well as PM International whenever our services are required.

#### **I. NUCLEAR AND RADIOCHEMISTRY**

The Nuclear and Radiochemistry Group has been charged with the responsibility for the use of radioisotopes and radiation to study how cigarette smoke is formed and is transported out of the cigarette. In order to accomplish this task, the group will be investigating mechanisms of smoke formation by being engaged in labelled precursor-product studies, labelled tracer studies, neutron activation analyses and radiation effects research. The group will continue to maintain the Health Physics responsibility which includes environmental monitoring of the natural radioisotopes. The preparation of labelled tobacco via biosynthesis will also continue in order to accomplish our isotopic studies.

Distribution of effort—fundamental studies, 80 percent; technical services 20.

#### **II. FOURIER TRANSFORM INFRARED EVOLVED GAS ANALYSIS (FT-IR-EGA) SYSTEM**

The study of smoke constituents generated during pyrolysis or combustion is important if cigarette deliveries are to be manipulated and controlled. These studies involve establishing the conditions when smoke products form, the rate at which they form, and the effects of secondary factors, such as heating rate and oxygen content, on their formation. For this purpose a FT-IR-EGA System has been developed. The technique will be employed to examine gases generated during tobacco decomposition.

This computer controlled system permits the simultaneous determination of major gas phase constituents and the effects of tobacco processing, expansion and blending. The system will be used to evaluate the denitration processes, effects of oxygen on the thermal degradation of tobacco and, in general, various physicochemical approaches to reduce gas phase components.

Distribution of effort:

	Percent
Fundamental Studies .....	50

	Percent
New Product Development .....	25
Technical Services .....	25

#### **III. TUNABLE DIODE LASER (TDL) SYSTEM**

While a clear picture of the thermal behavior of tobacco is being obtained with the EGA System (above), the TDL System is being developed to monitor both mainstream and sidestream gas phase components under actual smoking conditions.

The increased resolution and sensitivity of the TDL System will permit us to investigate two major areas: 1. The first involves monitoring certain gas phase components in mainstream and, 2. The second is the profiling of gases within a single puff.

In the area of filtration and filter development, changes in dilution as a function of puff number become important. With the TDL system puff-by-puff profiles of many gas phase constituents can be obtained for evaluation of the effect of dilution on gas phase reduction.

A clear understanding of dilution of filtration mechanisms can be greatly facilitated by a detailed knowledge of the rate of delivery of a smoke component within an individual puff. Because of limited detector response time, the profile within a single puff of smoke could not be investigated utilizing conventional infrared instrumentation. Using tunable diode lasers a method will be developed which will allow puff-by-puff variations and the single puff profile of gas phase constituents to be simultaneously recorded.

Major gases which will be monitored included NH<sub>3</sub>, acrolein, CO, NO, NO<sub>2</sub>, and HCN. Distribution of Effort:

	Percent
Fundamental Studies .....	50
Cost Savings .....	20
New Product Development .....	20
Technical Services .....	10

#### **77. PATTERN RECOGNITION ANALYSIS (PRA)/CHEMOMETRIC CHARACTERIZATION OF TOBACCO**

The ability to recognize and measure differences in competitor's cigarettes is essential in the design of our own products and in maintaining a clear view of the changes in the cigarette market. The approach taken to obtain the required analytical information has been to develop the necessary methodology to quantitatively measure individual components of tobacco and smoke. This single parameter approach (tar, nicotine, water, PG, RTD, etc.) has permitted us to establish a significantly large data base for comparison purposes. However, the complexity of tobacco processing, changes in filter design, application of new flavors, changes in cigarette dilution, and various alterations made to the tobacco (expansion, denitration) have required that approaches be established and employed to characterize and differentiate between various tobaccos and tobacco blends. Multi-variate data analysis in the form of pattern recognition analysis (PRA) is a versatile tool for extracting information from a well defined data base and is in fact the approach which will be taken to classify tobaccos.

The long-range goal for PRA is to interrelate flavor quality, that is, subjective responses, with analytical data. In our attempts to achieve this goal, computer manipulation techniques and sampling procedures are currently being tested and refined. Distribution of Effort:

	Percent
Fundamental Studies .....	20

	Percent
Cost Savings .....	20
Methods Development .....	40
Technical Services .....	20
<b>V. NUCLEAR MAGNETIC RESONANCE (NMR) LABORATORY</b>	

Conformational analysis of tobacco and smoke components and those organic compounds which have either flavor or biological implications will continue to occupy the bulk of the activities in the nuclear magnetic resonance laboratory. To this end, strategies have been designed and computer programs written in order to extend the  $^{13}\text{C}$  T $_1$  analysis already completed for nicotine to other compounds. This analysis will yield information regarding internal and overall motion as well as conformational details. An extension of these investigations will be to study a variety of menthol derivatives to establish both the conformation and relative configuration at asymmetric centers.

Distribution of Effort:

	Percent
Fundamental Studies .....	60
Technical Services .....	40

#### **VI. MECHANISMS OF TOBACCO EXPANSION—CHARGE NO. 8204**

Project No. 8204 will concentrate its efforts on the changes occurring in the non-water fraction of tobacco as a function of expansion. Investigations to date have emphasized the water fraction and its changes upon expansion, however, this has not yielded the complete picture with regard to the mechanism of expansion. Our involvement in this project will be to coordinate efforts in four major areas—

(A) Investigations into the interactions of salts and their distribution within the tobacco cell wall with expansion. Particular attention will be given to calcium. The method of investigation will be the measurement of the rates of cation extraction with various solvent systems using atomic absorption techniques.

(B) FT-IR evolved gas analysis of the various expanded samples, to study the changes in specific tobacco components upon expansion (i.e., sugars, cellulose, pectin, etc.).

(C) EPR studies of the free radical content of expanded samples to gain insight into the effects of heat and air on the tobacco constituents.

(D) SEM microstructural studies in order to access physical cell wall damage as a function of the method of expansion.

These investigations are in various stages of completion at the present time and will be continued throughout 1980.

Distribution of effort:

	Percent
Fundamental Studies .....	70
Cost Savings .....	10
Methods Development .....	20

#### **VII. ANALYTICAL RESEARCH NECESSITATED BY LOW TAR CIGARETTES**

##### **A. Significance and Use of Gas Phase (OGPP) Data**

As our products aim toward lowered tar deliveries, gas phase delivery assumes a role of greater importance. The techniques employed in the chromatographic separation of tobacco and smoke constituents and subsequent chemometric characterization of tobacco have been shown to provide data that his previously been inaccessible. This data will be correlated with cigarette variables such as blend composition, filter effectiveness, paper types and flavor systems.

##### **B. Significance and Use of Profiling Whole Smoke by Gas Chromatography**

The techniques developed for production of high resolution gas chromatographic separation of gas phase components will be applied to whole smoke, especially for the ultra-low tar delivery models.

##### **C. Analytical Procedures Developed for Low Tar Cigarettes**

Efforts will be made to develop analytical procedures for the evaluation of low tar cigarettes since the procedures now in use were developed for cigarettes yielding relatively gross amounts of tar. These new procedures will be directly correlatable with the FTC tar number.

An automated computerized technique towards this end is being investigated using the 2-propanol extract of TPM needed for the nicotine and water determination.

Distribution of Effort:

	Percent
Fundamental Studies .....	40
Methods Development .....	40
Technical Services .....	20

#### **VIII. SUPPORT EFFORTS**

##### **A. Leaf**

Support in this area will be given as a cooperative function with other divisions of R&D as well as areas outside R&D. The changes in the chemistry of aging tobacco as well as chemical changes caused by cultural practices and storage variation will be monitored. In addition to established analytical procedures, some methods development and/or modification will be necessary.

##### **B. Manufacturing**

Support will continue to be given to Manufacturing to assist them in problem areas involving tobacco processing. Particular effort is anticipated in the area of tipping paper problems. A great deal of effort will be expended to develop an on-line optical porosity monitor which will be interfaced with the existing laser perforator.

##### **C. International**

Support for International is expected to continue. This requested support will be in the form of on-site education and training in the operation of instrumentation as well as troubleshooting. Significant in these areas is the automated determination of TPM,  $\text{H}_2\text{O}$ , nicotine and tar.

#### **NUCLEAR AND RADIOCHEMISTRY OF SMOKE—PLANS AND OBJECTIVES (1980)**

##### **I. PRECURSOR-PRODUCT STUDIES**

These studies are divided into two broad areas—A. Naturally occurring materials present in the finished cigarette. Examples are the following: 1. What are the major smoke products from tobacco polyphenols? 2. Is nicotine transferred at the same rate from bright, burley, ET, stems, etc.? 3. How much CO is formed from each ingredient in the cigarette? Do the various tobaccos contribute their equal shares to the CO? Does the calcium carbonate in the paper contribute to the CO formed? How much do the sugars, humectants, etc., contribute?

B. Added materials and their contribution to smoke. These are broken down into several areas.

1. Flavor release compounds—Selected candidates will be prepared, labelled and the contribution of each part of the compound to smoke determined. This type of study must be conducted for every new material added

to our cigarettes in order to insure that we know what is produced in the smoke stream.

2. Distillable flavors/additives—These materials must also be studied to determine their contributions to smoke in order to ascertain what products are derived from the precursors added.

##### **II. LABELLED TRACER STUDIES**

This area will be divided into research and service A. Service—In this area, efforts will be in the use of labelled compounds to determine isolation schemes and recoveries from ours and other projects' research studies. Examples are:

1. The use of  $^{14}\text{C}$ -NNN to determine recoveries and to calculate absolute amounts delivered.

2. The use of labelled rutin to establish recoveries (if any) from smoke.

3. The use of neutron activation analysis (NAA) to determine Br and Cl levels in submitted samples.

B. Research 1. Labelled materials will be selectively placed within the cigarette at known locations, and these used to determine smoke formation mechanisms, dilutions and deliveries. 2. Neutron Activation Analysis will be used to follow the fate of the inorganics during smoke formation, i.e., how are the inorganics transferred into smoke, and how do they affect smoke formation?

##### **III. SMOKE FORMATION AND COMPOSITION STUDIES**

A. Smoke Aerosol Studies—It has already been demonstrated that the chemical composition of MS nonvolatile smoke is different for different smoke particle sizes. This has important considerations in giving the smoker maximum impact. If the desired flavors can be enriched into those particle sizes which have maximum lung retention (or mouth retention if desired), overall concentration in the total smoke can be kept to a minimum. The data will allow us to accurately state just how much of each smoke component in each particle size range comes from each labelled cigarette constituent.

B. Use basic smoke formation knowledge to regulate the delivery of selected smoke constituents. Examples are 1. The use of selected flavor components on the cigarette periphery to give "enriched" TPM in the MS. 2. The use of solid center tobacco cores to "block" the formation and transfer of CO to the MS smoke.

##### **IV. ENVIRONMENTAL RADIOLOGICAL MONITORING**

A. Monitor all naturally occurring radioisotopes in our tobaccos and finished cigarettes. These data will be used to monitor any increase in naturally occurring materials in our future tobaccos due to environmental factors similar to Three Mile Island.

B. Conduct all defensive studies regarding naturally occurring isotopes, i.e., the  $^{210}\text{Pb}$ ,  $^{210}\text{Po}$  problems of the past, etc.

##### **V. GREENHOUSE FACILITY**

The greenhouse facility will provide support in the following areas:

A. Establish the techniques and produce labelled plant materials which will provide the major source for all of the labelled smoke studies at R&D.

B. Provide fresh green tobacco plant materials to all Research & Development projects and other PM departments, as requested.

C. Provide a liaison with R&D, The Leaf Department, Tobacco Industry Committees, commercial companies, Federal and State Agricultural Research agencies, and growers,

on a cooperative basis, to test and evaluate any necessary materials and/or tobacco deemed in the best interest of the company.

D. The preparation of all experimental labelled cigarettes in support of all ongoing research studies utilizing Carbon-14 and Nitrogen-15.

#### VI. MASS SPECTROMETRY LABORATORY

The existing mass spectrometers will be utilized in support of both ongoing and planned Research programs. These programs include the MC Materials Evaluation Program, the synthesis of tobacco flavorants and the evolved gas analysis program which entails the determination of the gases evolved from thermally degraded tobacco. Particular emphasis will be placed using mass spectrometry in tobacco product precursor studies and especially the nitrogen containing components.

Since the present hardware and software are nearly fully extended, the primary activities over the coming year will be in the area of system investigations. Continuing studies include the denitration, and expansion processes, cellulase treatment, and baseline studies on individual tobacco constituents. The baseline data will also be used in correlation studies on the effects of physical factors (heating rate, flow rate, etc.) on constituent decompositions. Other planned investigations include the effect of genotype and fertilizer application on ammonia and other nitrogenous materials in burley tobacco. Also, the correlation between formic acid evolution and molecular weight of cellulose will be explored further.

#### SPECTROSCOPY/CHROMATOGRAPHY SECTION

##### I. Tobacco and Filler

###### A. Tobacco Expansion

OBJECTIVE: Develop data base designed for defining tobacco expansion as functions of physical and chemical parameters

###### ACTIVITIES:

(1) Investigate salts' interactions and their distribution within the tobacco cell wall using atomic absorption

(2) Study changes in tobacco components using FT-IR and Evolved Gas Analysis

(3) Coordinate efforts of Charge No. 8204

###### B. Blend Composition

OBJECTIVE: Quantitative discrimination of cigarette blend components

###### ACTIVITIES:

(1) Investigate and determine optimum methods for sample preparation and analysis by (GC)<sup>2</sup>

(2) Establish degree of difference of total blend components

(3) Apply chemometric techniques

##### II. Smoke

A. Chromatographic/Chemometric Characterization

OBJECTIVE: Application of chemometric techniques in extraction of information from smoke analyses

###### ACTIVITIES:

(1) Develop procedures for profiling wholSmoke

(2) Investigate use of mass spectral data as a "third dimension" in GC smoke profiling

(3) Apply ARTHUR to profiled data for correlation with sensory evaluations.

###### B. Tunable Diode Laser (TDL)

OBJECTIVE: Application of TDL to understanding of parameters affecting smoke component formation and delivery

###### ACTIVITIES:

(1) Determine mechanism of incorporation of water oxygen atoms in nitric oxide

(2) Quantitate NH<sub>3</sub>, NO<sub>2</sub>, NO, and acrolein in whole smoke

(3) Develop programs for on-line dedicated computer processing of TDL data

(4) Construct single puff profile (within puff) monitors for CO

(5) Develop infrared laser monitor for routine puff-by-puff quantitation of NH<sub>3</sub>

##### III. Other

###### A. Optical Porosity Monitor

OBJECTIVE: Provide accurate on-line measurement of porosity of laser perforated tipping paper

###### ACTIVITIES:

(1) Design and build prototype laser monitors for optically measuring porosity of tipping paper

(2) Develop system for tracking perforations as to positioning of holes.

###### B. Automation

OBJECTIVE: Increase accuracy and capacity for routine GC analyses

ACTIVITY: Apply automation to routine GC analyses with dedicated or time-shared on-line data collection and report generation

C. Flavor Release Compounds—NMR Studies

OBJECTIVE: Increased understanding of the synthesis and reactions of potential flavor release compounds (in collaboration with Yoram Houmimer)

###### ACTIVITIES:

(1) Determine stability of methyl pyrazine anions through NMR studies of deuterium exchange kinetics of methyl protons

(2) Examine the conformation of pyrazine ethanol by coupling constant analysis and by studying the effects of various substituents on proton chemical shifts

(3) Assign <sup>13</sup>C and <sup>1</sup>H spectra of alkyl pyrazines using coupling constant measurements and lanthanide shift reagents

D. Conformation of and Kinetics of Internal Rotation in 2, 4-dimethyl Nicotine

OBJECTIVE: Understanding the energetic factors which determine the solution conformation of tobacco alkaloids

ACTIVITY: Measure the rotational barriers on 2, 4-dimethyl nicotine by <sup>13</sup>C NMR lineshape analysis; analyze conformation from coupling constants and Nuclear Overhauser effects

#### SPECIAL INVESTIGATIONS

The following is a list of plans and capital instrumentation needed by the above section in 1980.

##### I. Tobacco and Filler

A. Complete Development of HPLC Determination of Solonol in Tobacco and/or Smoke

OBJECTIVE: To assist the flavor transfer group in their evaluation of the lipid portion of the blend for flavor characteristics.

Project Chiefly Concerned—2306

##### B. HPLC Study on Turkish Tobacco

OBJECTIVE: To do a cumulative collection of selected HPLC peaks from Turkish tobacco extracts for reconstitution into cigarettes. The cigarettes will be subjectively evaluated and the peaks of interest will be identified. This will be a cooperative effort with development.

Project Chiefly Concerned—2306

##### C. Liquid CO<sub>2</sub> Extraction of Tobacco

OBJECTIVE: To investigate the utility of the apparatus for analytical extractions, particularly for the lipid portion of tobacco. To do HPLC on the extracted material and compare it with other extraction techniques.

Projects Chiefly Concerned—1901, 1503, 8401, 2306

##### D. Amino Acid Analysis

OBJECTIVE: To determine individual amino acids and peptides on samples of green leaf, cured leaf, expressed juices and protein hydrolysates. The Dionix amino acid analyzer will be used to replace the long tedious gas chromatographic procedure.

Projects Chiefly Concerned—8205, 1503, 1901

##### E. Organic Acids in Tobacco by HPLC

OBJECTIVE: To develop an HPLC procedure for the determination of organic acids in tobacco. The procedure could replace the tedious extraction and derivatization steps required before the gas chromatographic readout. A 0.5% dicyclohexylamine ion-pairing agent will be the eluting solvent and a C<sub>18</sub> column will be used.

Projects Chiefly Concerned—1503, 1901

##### F. Tobacco Protein Analysis

OBJECTIVE: To investigate the proteins in tobacco and smoke. Emphasis initially would be directed toward the separation of tobacco glycoprotein by GPC and HPLC.

Projects Chiefly Concerned—6900, 6906, 6908

##### G. Amino Sugars in Tobacco and Reaction Flavor Mixtures

OBJECTIVE: To determine the amino sugars formed from the reaction of sugars and amino acids and/or ammonia. The approach will be investigation of the reaction of ninhydrin with amino sugar, making appropriate correction for amino acids.

Projects Chiefly Concerned—8401, 2305

##### H. Fluoride Selective Ion Electrode for Ionizable Fluoride

OBJECTIVE: This method will be developed in response to a request from Park 500 for a fluoride determination in potassium nitrate crystals isolated from CEL.

Project Chiefly Concerned—8205

##### I. Evaluation of the Microwave Moisture Meter for Leaf

OBJECTIVE: To assist the Engineering Department in the evaluation of their prototype microwave moisture.

Project Chiefly Concerned—8204

##### II. Smoke

###### A. Aldehydes in Smoke

OBJECTIVE: To extend the isocratic HPLC determination of aldehydes in smoke with the gradient capability of the new Hewlett-Packard HPLC to achieve better resolution of the peaks.

Projects Chiefly Concerned—8101, 6908

###### B. FTC Tar by TPM Fluorescence

OBJECTIVE: FTC tar measurement by fluorescence will be made for the study of filter efficiency, sidestream/mainstream ratios and puff X puff data on low delivery cigarettes.

Project Chiefly Concerned—8101

##### C. Electrochemical Analytical Techniques for Smoke Analysis

OBJECTIVE: These techniques should be investigated as a quick and selective way of determining aldehydes, ketones, alcohols, acids, volatile metals or any material capable of oxidation or reduction.

Projects Chiefly Concerned—6908, 1503, 1901

##### D. Gel Permeation on Whole Smoke Condensate

OBJECTIVE: To make a comparison of GPC profiles of WSC from cigarette types. The feasibility could be determined on the Waters 202 HPLC using microstrogel columns and THF solvent. Possibly the isolated PAH fraction could thus be enriched making easier any future analytical determinations of PAH's.

## Project Chiefly Concerned—6908

## III. Cigarette Paper

## A. Completion of Tipping Paper Ink/Adhesion Problem

**OBJECTIVE:** To determine from one lot of paper to another and to be able to correlate these differences with performance on the cigarette maker.

## Project Chiefly Concerned—8205

## B. Citric Acid in Cigarette Paper

**OBJECTIVE:** To develop a simple HPLC procedure for citrates in cigarette paper to replace the present gas chromatographic procedure. The procedure will be developed on the new Hewlett-Packard 1084b HPLC. The old DuPont 820 HPLC will be dedicated for this determination.

## Project Chiefly Concerned—8101

## GENERAL ANALYTICAL CHEMISTRY

## I. General

A. Provide accurate, precise analytical service as needed to personnel of R&D and other PM departments with a target turnaround time of seven work days or less per request.

B. Consult with the above personnel in order to advise them on ways of obtaining meaningful analytical data to aid them in meeting current and future project objectives.

## II. Tobacco Leaf, Filler, Reconstituted Materials and Process Slurries

A. Investigate HPLC methods for separation and/or quantitation of (in order of priority):

1. Polyphenols

2. Major and minor alkaloids

3. Sorbate salts and sorbic acid in filler

B. Incorporate a nitrite nitrogen procedure into the nitrate nitrogen method.

C. Conduct a rigorous investigation into all aspects of the petroleum ether solubles method in order to develop a more efficient procedure.

D. Adapt the rapid procedure for hot water solubles to the determination of cold water solubles.

E. Develop a rapid accurate direct method for low levels of insoluble solids in process slurries to aid in improving accuracy of material balance studies.

F. Improve precision, accuracy and sensitivity of the sorbic acid method.

## G. Total Nitrogen Determination

1. Maintain contacts with the manufacturer of the LECO NP-28 to lower maintenance requirements and reduce downtime.

2. Investigate the feasibility of the determination of insoluble nitrogen on the LECO NP-28.

3. Investigate other methods of total nitrogen determination, such as pyrolysis-chemiluminescence.

4. Do a critical study of the effect of conditions such as the salt concentration of digests on the values obtained in the Kjeldahl total nitrogen method using the Technicon block digester.

H. Investigate conditions which affect the reproducibility of barium sulfate crystal formation in the turbidimetric sulfate method.

## III. Smoke

Evaluate the method for  $\text{NH}_3$  in mainstream wholSmoke by comparison with values obtained by the infrared spectroscopy group on the diode laser IR spectrometer, with the development of a low cost diode laser instrument capable of routine operation as a goal.

## IV. Miscellaneous

## A. Methods Manual

1. Document all methods in routine use in the General Analytical Section.

2. Consider ways of evaluating circulated manuals for accuracy of content.

3. Utilize computer capabilities for manual indexing and updating.

## B. Computer/Microprocessor Applications

1. Utilize the existing microprocessor or the computer for the automation of the weighing of petroleum ether extractables.

2. Expand the availability of computer-generated hard copy reports.

## C. Instrumentation

1. Keep abreast of new developments in HPLC technology to update present equipment, especially new detection systems.

2. Optimize all AutoAnalyzer systems to increase speed and accuracy and decrease reagent use.

## D. Personnel Education

1. Continue rotation and cross-training of professionals and technicians.

2. Develop a training program for technicians providing instruction in laboratory skills (complete with written material) necessary in our laboratory.

3. Develop a program of education of both the analyst and submitter so that work performed is both meaningful and necessary.

E. Conduct an extensive study of laboratory organization to determine what changes (e.g., flex time) might result in more efficient operation, then implement those changes.

F. Assume responsibility during the first quarter of 1980 for the receiving, coding, collating and transmittal of samples and data from sources outside of R&D.

## BIOCHEMICAL RESEARCH

To: Dr. T.S. Osdone

From: W.F. Kuhn

Subject: Plans and Objectives for 1980—Biochemical Research Division

Date: January 7, 1980

The attached documents are the Plans and Objectives prepared by the individual project leaders in the Biochemical Research Division. These reports represent the areas of research to be explored in 1980 under each charge number. Each project leader prepared his report from the input he received from his colleagues coupled with his own goals for the coming year.

The overall objectives of the Division are threefold and remain essentially the same as outlined in previous reports. First, develop an integrated program for control of insects which infest stored tobacco, processed filler and finished cigarettes. Second, establish a matrix or battery of *in vitro* bioassays for the evaluation of the biological effects of smoke products and apply these assays for the investigation of biological, chemical, and physical parameters of cigarette smoke. Third, develop methods for the collection, isolation, identification and quantitation of tobacco and cigarette smoke components which affect the *in vivo* and/or *in vitro* bioactivity. The main areas of endeavor are highlighted below.

## CHARGE NUMBER 1101—ENTOMOLOGICAL RESEARCH

Our effort on cigarette beetle physiological studies will be continued. This emphasis stems from the trend to eliminate the use of highly toxic or residual pesticides as control agents and increase the use of mechanical

and physical methods to achieve the desired result. This effort will be focused on: (1) the effect of relative humidity and low temperatures toward beetle growth; (2) the investigation of the comparative attractiveness to the beetle of various colors from the visible spectrum; (3) the initiation of studies on the use of feeding inhibitors; e.g., Neem nut extracts, as possible repellents; (4) the efficacy of pyrethrin alone as a larvicide; and (5) the evaluation of commercially available sex pheromones of the cigarette beetle and the tobacco moth. (Japanese scientists have published the synthesis of a chemical reported to be the sex pheromone of the cigarette beetle.)

The research program on the application of an insect growth regulator, methoprene, was highly successful. These results led to the initiation of a large commercial application trial (16,000 hogsheads) of KABAT—5% methoprene in ethanol—to strip and stem. We will monitor the treated tobacco materials for the presence of cigarette beetles and methoprene residue. These hogsheads will be used to evaluate the effects of various control practices (methoprene only, methoprene+DDVP fogging and methoprene+DDVP fogging+PH fumigation) in separate warehouses. The HTI results of both methoprene treated Marlboro filler and Benson & Hedges filler in relation to appropriate controls will be completed. We will assist in the transfer of KABAT application techniques to Stemmerly personnel as the use of material is more widely used throughout Philip Morris, U.S.A.

We will continue to provide consultation and technical service to other Departments within the Company. Such effort will focus on the efficacy of DDVP fogging in warehouses, methyl bromide vacuum fumigation at lower dosages and on-site examinations within PM, USA and upon request. Distribution of effort:

	Percent
Fundamental studies .....	30
Cost savings .....	45
Technical services .....	25
CHARGE NUMBER 6906—BIOLOGICAL EFFECTS OF SMOKE	

In the coming year, the goals of this group reflect our decision to learn more about the existing, developed assays rather than focus our attention on the interests of the company to emphasize the former at the expense of the latter. Since our resources are finite, we cannot engage in both endeavors and adequately contribute to the understanding of effects of smoke components in biological systems.

## MAMMALIAN CELL SYSTEMS

The principal goal of the L5178Y mouse cell (thymidine kinase mutation) assay will be to define parameters which determine the activity of whole smoke condensate (WSC). To accomplish this goal, three lines of investigation will be pursued. First, the WSC derived from cigarettes which contain filler variants of the LTP-III formula will be tested. Second, acid, base and neutral fractions isolated from WSC will be evaluated as well as the testing of fractions derived from synthetic mixtures of pure compounds to define the application of the exponential dose-response curves. In addition, WSC will be "spiked" with a known chemical of high activity to trace its distribution, recovery and potential interaction with isolates smoke components. Third, the effect of variable microsomal protein (S9) on the activity of positive control chemicals and WSC will be

studied. The objective of this effort will be to determine how the relative activities of various WSCs are influenced by changes in the amount of available, exogenous mammalian metabolism.

Although investigations on the measurement of sister chromatid exchange (SCE) were suspended last year, investigations on this phenomenon will be resumed. Successful establishment of this assay will provide a second genetic endpoint in the L5178Y cell system as well as provide an additional assay for evaluating the biological effects of smoke products.

Literature reports indicate that smoke products are weak initiators but moderate promoters in the two-stage model of carcinogenicity. By measuring the degree of metabolic cooperation between thymidine kinase proficient (TK<sup>+</sup>/+) and thymidine kinase deficient (TK<sup>-</sup>/-) cells in the presence of trifluorothymidine, it may be feasible to develop an *in vitro* assay for promoters with L5178Y cells. Investigations will be conducted to explore this phenomenon in the coming year.

The major goal of the baby hamster kidney (BHK) assay will be to establish the system with positive and negative control compounds. Experiments designed to identify the causes of problems encountered to date are under investigation. Failure to resolve these problems in our facilities may require a visit to Dr. J.A. Styles' laboratory at ICI in England to gain "hands on" experience in conducting this bioassay.

#### NONMAMMALIAN SYSTEMS

Our efforts in the *E. coli* differential toxicity assay will be directed toward the hypothesis that aldehydes in smoke are causally related to activity. This study is closely coupled to the development of a method for aldehydes in smoke by personnel of the smoke condensate studies group.

The major thrust in the yeast mitotic gene conversion assay will continue to refine our knowledge of the determinants of WSC activity. We plan to study the activity of TPM as a function of puff volume initially which may lead to additional studies on activity versus puff interval and/or frequency. Additionally, the water soluble and insoluble fractions of WSC will be tested along with the components present in the acid, base, and neutral portions of WSC. On a continuing basis, the pyrolyzate formed at 620 °C from filler of various cigarettes will be tested. In particular, the higher activity of RCB versus RL is especially important.

Various investigations involving the application of the *Salmonella*/microsome assay continue to require about 50% of the total personnel effort of this project. In this regard, we plan to study the TPM activity as a function of puff volume, duration and frequency. The feasibility of testing pyrolyzed materials in the assay was demonstrated in 1979. We plan to continue this effort this year. Studies of whole smoke and gas phase activity (direct exposure of plates in a chamber) in this assay will be suspended while the principal investigator is on LOA. However, some work will be done on the activity of whole and gas phase smoke collected directly in solvent (DMSO) filled traps. Although this study is not as elaborate as the chamber-exposure technique, it should provide valuable information about the activity of gas phase.

We plan to pursue the extensive study of the base fraction, acid/neutral fraction and WSC activity of 14 model cigarette types. We will continue the investigation of compo-

nents responsible for the base fraction activity of burley cigarettes. In this regard model compounds such as amino  $\alpha$ - and  $\gamma$ -carboline will be studied.

We will continue to test potential cigarette additives and WSC from new cigarette candidates as requested. We anticipate that this effort will receive increased emphasis in the coming year.

Another specific goal will be to prepare an internal *Salmonella*/microsome assay methods manual to document all procedures involved with this assay.

Distribution of Effort:

	Percent
Defensive Research .....	90
New Produce Development .....	10
CHARGE NUMBER 6908—SMOKE CONDENSATE STUDIES	

The primarily defensive nature of this research effort necessitates a continual monitoring of developments in the literature related to the biological activity of smoke components. Achievement of this project's goals require close coordination of research efforts with those of charge number 6906 which were expressed in the previous section.

More emphasis will be placed on condensate collection studies since these methods may affect the overall research effort. Collection of WSC in Elmenhorst cold traps (ECT) or impaction-traps (IT) will continue, along with processing, for *in vivo* testing. The collection of samples for *in vitro* and chemical studies has been expanded to ECT, IT, TPM pad, gas phase, and collection in liquids. Some of these collection methods will require further development. We plan to design and apply sidestream smoke collection systems in the coming year. A longer range study of a glass cascade impaction trap for a particle size profile is planned. Satisfactory separation of discrete particles will lead to the chemical and biological evaluation of each size fraction.

A system will be established for controlled pyrolysis or combustion of filler for chemical and/or *in vitro* bioassay investigations. The evaluation of a series of marks isolated from flue-cured tobacco is planned.

Major improvements in chromatographic separation procedures are anticipated. Achievement of this objective will permit the investigation of new areas of smoke condensate chemistry as well as more thorough evaluation of studies conducted previously. Toward this objective, extensive modification of the PE-900 gas chromatograph (gc) for use with fused silica columns is underway. A low pressure liquid chromatographic (lc) system was designed and will provide a flexible preparative or isocratic analytical lc system. Major emphasis of this system will be directed toward the reversed phase chromatographic evaluation of the base fraction from burley WSC. The acquisition of a high performance liquid chromatograph will provide sufficient capability to develop new methods for the isolation of smoke components of biological importance.

The procedure for volatile nitrosamines is well developed and will be applied to smoke products upon request. We plan to apply the methodology to correlate tobacco precursors with nitrosopyrrolidine in smoke. Investigation of nitrosamines in sidestream smoke and processed WSC will be investigated. Development of methods for the characterization of nonvolatile nitrosamines will be pursued. Initial studies will concentrate on mainstream smoke, but may be extended to sidestream smoke later this year.

The isolation and identification of active components in the base fraction of WSC has proven difficult. However, the high microsome dependent (*Salmonella*) activity in this fraction requires our continued attention. We will pursue this goal using the improved chromatographic equipment described previously as well as use of model compounds for enhanced improvements in fractionation and identification procedures. From studies of a series of 14 cigarette types, we hope to better understand the influence of filler composition on base fraction activity and yield. In addition, this evaluation should enhance our knowledge of the relative amounts of some specific components in WSC from these various tobacco types. Planned chemical studies include: pattern recognition analysis of gc data versus *in vitro* and/or *in vitro* bioactivity; quantitative hplc procedure for quinoline in WSC will be developed and extended to additional aza-arenes in these fractions; a method will be developed for harmaline and norharmaline in the base fraction as well as methods for the determination of amino  $\alpha$ - and  $\gamma$ -carboline (tryptophane pyrolysis products). Cigarettes have been prepared by adding proline, tryptophane or phenylalanine to LTF-IIA filler. A study of the active base fraction components from these simple model systems is planned with emphasis on the tryptophane added sample.

Work will continue on the fractionation of bright tobacco. Increased emphasis will focus on the chemical components of each marc and extract, particularly the amino acid composition of protein fractions and the nature of the nonprotein nitrogen components.

There are additional areas of interest which do not fit into the research endeavors discussed above and thus are of lower priority. The utility of gel permeation chromatography will be explored for WSCs and condensate fractions. The effect of added sugars or sugar-amino acid reaction products in modulating the activity arising from proteins and amino acids in tobacco will be studied. It has been stated that a tobacco glycoprotein may be transferred into smoke (Becker's work). If so, an understanding of the parameters controlling this transfer would be beneficial. A capability for isolation of such material will be developed.

Distribution of Effort:

	Percent
Defensive Research .....	80
Fundamental Studies .....	10
Technical Service .....	10
To: Mr. W. F. Kuhn	
From: R. A. Pages	

Subject: Project Charge Number 6906 (Biological Effects of Smoke)—Plans and Goals for 1980

Date: December 20, 1979

#### 1. INTRODUCTION

The objectives of Project Charge Number unchanged.

(a) To develop a battery of short-term assays to evaluate the potential *b* effects of cigarette smoke product

(b) To conduct research investigations to generate an understanding of and control of cigarette smoke \* \* \* in each *in vitro* assay.

(c) To conduct tests on potential new products or additives upon request assist in the evaluation and inter \* \* \* of the results obtained.

The original objectives of the project above) presented us with a formidable challenge. \* \* \* challenge, we developed a strategy regarding the and evaluation of *in vitro*

assays at PM. Implement strategy led to the successful development to see \*\*\* detect and measure the *in vitro* activity of cigar \*\*\* condensate. With that success, we first discovered objective b and then came to recognize its ultimate importance to our program. Thus, it became apparent that the intelligent application of *in vitro* tests and the interpretation of their results could be carried out only when sufficient knowledge had been obtained about the many factors (cigarette, chemical, and/or biological) which together determine the level of cigarette smoke product activity. This was vividly illustrated when we were faced with trying to interpret the meaning of diametrically opposite results obtained with the same test material in different assays.

Against this background, we will now present our plans for 1980. This year, as in prior years, we have had to make difficult and risky decisions. This is because it is self-evident that: time is precious; our resources, both human and material, are finite; and we cannot do everything if everything we do is to be done well. Accordingly, our plans reflect an imbalance between learning more about our existing, developed assays and the development of additional, new assays. In our judgment, it is in the best interests of PM that we continue to emphasize the former at the expense of the latter.

## 2. PLANS AND GOALS FOR 1980

### A. L5178Y MOUSE CELLS

#### 1. Thymidine Kinase Mutation

The principal goal of work with this assay in 1980 is to try to define some of the parameters which determine WSC activity. Although this assay system for WSC has been established for almost two years, we do not yet know anything about the nature of WSC activity. (Tests on the Model II and URIS variant WSCs conducted during 1979 did not provide any new insights into this question.) We therefore propose to pursue three lines of investigation in the coming year.

(a) *LTF-III A Variants*—The Model I WSC results have consistently shown that LTF-III A yields a WSC which is significantly more active than LTF-III WSC. Following the approach so successfully used in the *Salmonella* microsome and *E. coli* assays, we will test the WSCs derived from cigarettes which contain filler variants of the LTF-III A formula. Enough filler is already available for these studies, but it will be necessary to fabricate handmade cigarettes for smoking in order to standardize cigarette paper porosity and filtration parameters. We intend to begin these studies no later than the second quarter of 1980 and to pursue them on a continuing basis thereafter. Our specific goal is to try to relate WSC activity to the presence (or absence) of particular precursors in the LTF-III A formula.

(b) *WSC Fractions*—Previous studies of fractions have been limited to a cursory examination of the H<sub>2</sub>O soluble and insoluble portions of 2R1 WSC (both fractions were active). We intend to exhaustively examine the question of activity in WSC fractions on a continuing basis during 1980. These studies will include: tests of the acid, basic, and neutral fractions from one or more Model I WSCs; the testing of fractions derived from synthetic mixtures of pure compounds in order to define how to use the exponential dose-response curves.

(c) *Activity as a Function of S9 Concentration*—Almost all prior work with this assay has involved tests conducted at a single, arbitrarily selected, level of microsomal protein (S9). Because it is well established that

the amount of S9 can have a dramatic effect on the level of activity observed in many short-term *in vitro* assays, we propose to investigate this phenomenon in the L5178Y TK mutation assay. Initial experiments will involve studies of the activity of our positive control compounds—B(a)P and 2-acetylaminofluorene. We will then investigate WSC activity versus S9. These studies will necessitate the conduct of assays simultaneously at different concentrations of WSC and S9. The specific goal of the experiments will be to determine how the relative activities of different WSCs and their respective dose-response curves are affected by changes in the amount of exogenous mammalian metabolism. Depending on the degree of success attained with testing WSC fractions at a single S9 level, these studies may also be extended to fractions tested at multiple S9 concentrations. This work will be initiated no later than the second quarter of 1980 and will proceed throughout the remainder of the year.

Prior to initiating the three programs outlined above, in the first quarter of 1980, we expect to conclude three ongoing investigations. The first is the evaluation of the utility and effectiveness of a modified cloning procedure which is expected to simplify the conduct of the assay. The second is the evaluation of a series of selected WSC-induced, trifluorothymidine (TFT)-resistant mutants to verify that they are indeed TK-deficient (TK<sup>-/-</sup>). The third is the drafting of a special report to document the conclusions reached after an extensive review of the data generated on positive and negative control compounds over the last three years. By doing this, we are hopeful of being able to establish objective quality assurance criteria which can be used to help us decide: when this assay is performing satisfactorily; what is the acceptable level of variation; and when is a test sample active or inactive in this assay.

#### 2. Sister Chromatid Exchange (SCE)

Work on the development of an assay based on the measurement of a second genetic endpoint, SCE, in L5178Y cells was suspended in May, 1979. As time permits, we plan to resume this effort on a part-time basis. Based on the information gathered in recent months, we are absolutely confident that we can successfully establish the SCE assay in our laboratory and that we can detect WSC activity by that method. If and when we are able to resume the SCE work, we expect to take advantage of the advice of Dr. David Kram (G. Washington University) by accepting an invitation to spend several days in his laboratory to obtain "hands on" experience with the SCE assay.

#### 3. Metabolic Cooperation

As time permits, we plan to conduct studies to measure the degree of metabolic cooperation between TK<sup>+</sup> and TK<sup>-/-</sup> cells in the presence of TFT. These exploratory studies are designed to examine the feasibility of the possible development of an *in vitro* assay for promoters in L5178Y cells along the lines pioneered by Trosko and co-workers (*Science*. 206:1089-1091; 1979 November 30).

#### B. BHK CELL TRANSFORMATION

The principal goal of our efforts on this assay in 1980 (as it was in 1979) is to reproducibly establish the assay system with positive and negative control compounds. The results obtained in 1979 were moderately encouraging in that we were able to obtain several cell clones which appear promising for use in the assay. Several sources of difficulty were identified with the published assay protocol—some of which appear to be

related to the quality of sera, media, etc. Major obstacles remain to be overcome, however, before satisfactory responses are obtained with positive control compounds and a usable assay protocol is available in our laboratory. Experiments designed to further identify the causes of problems and variables in this assay will be continued during the first and second quarters of 1980. If success has not been achieved by that time, strong consideration will be given to trying to arrange a visit to the laboratory of Dr. J. A. Styles at ICI in the UK in order to try to get some "hands on" experience in one of the few places that has been able to get this assay to work.

#### C. E. COLI DIFFERENTIAL TOXICITY

The principal goal for work with this assay in 1980 is to definitively test the hypothesis that aldehydes in smoke are causally related to activity. This is a collaborative effort with various personnel of Project Charge Number 6908.

In 1979, methodology was developed to test either whole smoke or TPM and gas phase in this assay. Additionally, experiments were begun to study the activity of several low molecular weight aldehydes in the liquid culture version of this assay. These experiments will be completed in the first quarter, 1980. Concurrently, 6908 personnel are exploring various possibilities for analyzing and quantitating the aldehydes in cigarette smoke. The ultimate test of the aldehyde hypothesis is contingent upon successfully coupling analytical chemical methods with the *in vitro* assay on common samples. Pending further progress on aldehyde method development by 6908 personnel, we intend to continue to investigate cigarette smoke activity as a function of physical cigarette parameters which are known to affect aldehydes in smoke (e.g., carbon filters). The specific goal of these studies will be to accumulate additional circumstantial evidence in support of the aldehyde hypothesis. This will be done on a continuing basis throughout 1980.

#### D. YEAST MITOTIC GENE CONVERSION

Our major goal in the yeast assay work in 1980 is to continue to refine our knowledge about the determinants of WSC activity. Excellent progress was made in 1979 based upon the results of tests on: the Model III WSCs and TPM; WSC fractions; and some cigarette filler pyrolyzates. We plan to continue efforts in all of these areas in 1980. Because many of the studies which are of interest in the yeast assay will also be conducted in the *Salmonella*/microsome assay, we anticipate that there will be extensive interaction and coordination with other personnel within 6906 and 6908 as well. Hopefully, this will minimize duplication of effort(s) whenever possible.

#### 1. WSC/TPM Activity versus Smoking Parameters

We intend to follow up our Model III cigarette studies by measuring the activity of TPM as a function of puff volume. These experiments will be conducted in the first quarter, 1980, and may lead to additional studies such as TPM activity versus puff interval and/or frequency. Further comparisons between TPM and WSC activity in the yeast assay will also be conducted on additional model cigarettes.

#### 2. WSC Fractions (with 6908)

We are interested in testing fractions derived from the H<sub>2</sub>O soluble and insoluble portions of WSC—both of which were found to be active in experiments conducted in 1979—particularly the base and acid/neutral fractions (Activity detected in the base fractions



would extend our observations of an association between filler nitrogen and WSC activity in this assay.) Because studies already underway in the *Salmonella*/microsome assay involve testing the bases and acids/neutralized prepared directly from various WSCs (see below), our initial efforts in the first quarter, 1980 will be directed toward testing some of those samples in the yeast assay as well.

### 3. Cigarette Filler Pyrolyzates (with 6908)

The results of feasibility studies conducted during 1979 demonstrated that samples prepared by heating cigarette filler in air at 620°C were active in the yeast assay as well as in the *Salmonella*/microsome assay. Thus, the acquisition of pyrolysis equipment by 6908 personnel to evaluate the potential of this method of generating samples for *in vitro* testing may also provide valuable information about the filler determinants of WSC activity in the yeast assay. In this connection, we are especially interested in investigating the higher activity of RCB versus RL. These studies will be conducted on a continuing basis throughout 1980.

### E. *SALMONELLA*/MICROSOME ASSAY

Various investigations involving the application of this assay will continue to make up about half the total efforts of the personnel of the project. The majority of these studies will be devoted to developing a better understanding of the determinants of WSC activity, although we also anticipate increased demands for testing WSCs and additives at the request of J.L. Charles.

#### 1. TPM Activity versus Smoking Parameters

Extension of the Model III WSC studies will be conducted by testing TPM from the Model III cigarettes during the first quarter, 1980. Upon completion of that work, we intend to study TPM activity (unfiltered PMKRC cigarette) as a function of puff volume. Depending on the results obtained, it may be important to also study the effects of changes in other smoking parameters such as puff interval and/or frequency. In continuation of our expanded efforts to study TPM activity, it may also be necessary to test the Model II cigarettes.

#### 2. Cigarette Filler Pyrolysis (with 6908)

We were sufficiently encouraged by the results of extensive feasibility studies conducted during 1979 to strongly urge and support the acquisition of pyrolysis equipment by 6908 personnel. We are hopeful that this equipment will be set up during the first quarter so that intensive studies can begin to establish the relationship between various pyrolysis conditions (e.g., temperature, air versus nitrogen, etc.) and activity in this assay. (As indicated above, section 2.D.3, there is great interest in exploring the application of this method to generate samples for testing in other *in vitro* assays.) The ultimate goal of these investigations will be to determine how pyrolysis can be used to evaluate the activity of samples for which cigarette fabrication is not feasible—particularly the extracts and marks of bright tobacco and RCB feedstock. Pyrolysis studies will be continued throughout 1980.

#### 3. Whole Smoke and Gas Phase Studies

Studies of whole smoke activity in this assay as originally conceived (exposure of prepared agar plates in a chamber) will be suspended while the principal investigator is on leave. However, it is likely that some work will be conducted during the first and second quarters, 1980 to investigate the *Salmonella*/microsome activity of whole smoke and gas phase samples prepared by the methods developed for the *E. coli* assay—i.e., by collection in solvent (DMSO) filled traps.

While not as elegant as the chamber-exposure technique, it is likely that such experiments will provide valuable information regarding the activity of gas phase smoke components.

#### 4. WSC versus Base Fraction Activity (with 6908)

Already in progress is an extensive study of the base fraction, acid/neutral fraction, and WSC activity of 14 model cigarette types. The study should be completed in the first quarter, 1980. At that time, we expect to be able to answer several important questions: *What is the relationship between WSC specific activity and the specific activity and concentration of the base fraction? Do the components recovered in the weakly active acid/neutral fraction have an effect on base fraction activity; i.e., are there any interactions? Does the presence of high concentrations of nicotine in the base fraction (30-60% of the fraction is nicotine) have any effect on the microsome-dependent activity of the high activity compounds that are present in that fraction?*

#### 5. Fractionation of WSC Bases (with 6908)

The isolation and identification of individual components which may be important determinants of burley WSC activity remains the specific goal of this program. Further progress in this effort is dependent on the development of improved separation and identification methods by 6908 personnel. Plans have been formulated to investigate various separation procedures in conjunction with the use of model compounds such as amino- $\alpha$  and  $\gamma$ -carboline. In addition, we also plan to study the activity of selected fractions as a function of different levels of S9 to ascertain if the low accountabilities of activity sometimes observed is due to the use of single, nonoptimal levels of S9 in routine tests. All of the studies will be ongoing throughout 1980. \* \* \*

#### 7. Assay Standardization and Quality Assurance

In 1979, a series of steps was taken to improve our internal quality control over the conduct of the assay. These included: greater interaction and coordination on a regular basis between all members of the project involved in using the assay; the use of the common cell stocks and samples of positive control compounds; standardization of assay methodology of conform to the most recent recommendations of Ames and co-workers; and more careful monitoring of interexperiment variations of spontaneous backgrounds, cell titers, and positive control activities. These efforts will be continued and expanded in 1980. It is our specific goal to prepare an internal, *Salmonella*/microsome assay methods manual which will document in detail all phases of the conduct of the assay at PM including data processing and analysis via the R & D computer. We expect to complete the initial draft of the manual in the second quarter of 1980 and then to continually update it whenever changes in protocol or procedures are made.

#### F. PERSONNEL

We have received authorization to hire a new person for our group in 1980. In view of the rather ambitious program outlined above and in keeping with our basic philosophy on current priorities as outlined in the Introduction above, our plans are to hire an Associate Scientist A in the second quarter of 1980. The new person will be assigned to work under the supervision and direction of more experienced personnel in one of the assay areas outlined above. Exactly which area will be decided upon at the end of the first quarter of 1980.

### 3. SUMMARY OF PLANS AND GOALS FOR 1980

#### Assay/Activity

##### A. LS178Y Mouse Cells: Time

##### 1. TK Mutation

Verify WSC-induced, TFT-resistant mutants are TK: 1st quarter  
Modified Cloning Procedure: 1st quarter  
Develop and publish quality assurance criteria for assay: 1st quarter  
LTF-III variants-filler: 2nd quarter composition vs. WSC activity; and continuing  
WSC fractions: 2nd quarter and continuing  
WSC activity vs. S9 concentration: 2nd quarter and continuing

##### 2. SCE

Establish assay: as time permits

##### 3. Metabolic Cooperation

Feasibility studies: as time permits

##### B. BHK Cell Transformation

Establish assay protocol with positive and negative control compounds: continuing  
C. *E. coli* Differential Toxicity

Aldehydes in smoke vs. activity: continuing

Test model compounds in liquid culture assay: 1st quarter

Activity vs. physical cigarette parameters: 2nd quarter and continuing

Method development—aldehyde analysis (by 6908 personnel): continuing

##### D. Yeast Mitotic Gene Conversion

TPM activity vs. puff volume: 1st quarter

Base vs. acid/neutral fractions of WSC: 1st quarter and continuing

Cigarette filler pyrolyzates: continuing

e. *Salmonella*/Microsome Assay

TPM activity vs. puff volume: 1st quarter

Cigarette filler pyrolyzates: continuing

Whole smoke and gas phase activity of solvent trapped smoke: 2nd quarter

WSC vs. base fraction activity: 1st quarter;

Fractionation of WSC bases: continuing

Additive and WSC testing: as requested

Research studies of additive testing: 2nd quarter

Assay standardization and quality assurance

Methods: continuing

Manual: 2nd quarter

To: Mr. W.F. Kuhn

From: R.N. Ferguson

Subject: Plans and Objectives for 1980  
(Charge Number 6908)

Date: December 18, 1979

### 1. INTRODUCTION

The project continues to have several interrelated goals:

(a) to develop and apply methods to identify and quantitate components of cigarette smoke which relate to biological activity,

(b) to use cigarette models to relate chemical composition to biological activity including precursor/product relationships,

(c) to develop or improve methods for collection of cigarette smoke and apply these to collection and processing of smoke condensate for *in vivo*, *in vitro*, and chemical testing.

The primarily defensive nature of this research necessitates a continual monitoring of developments in the literature related to the biological activity of smoke components. These goals also require a close coordination of our research efforts with those of Charge Number 6906—Biological Effects of Smoke.

During the last year, considerable progress was made in nitrosamine studies, in base

fraction components, in liquid and gas chromatography methods, in pyrolysis, and in an aldehyde procedure. The complexity of WSC remains the major challenge to advances in these areas of interest. Another problem is the large number of areas requiring our attention. This is due to the considerable number of potentially active components known or suspected in WSC.

## II. RESEARCH PLANS

### A. Condensate Collection and Processing

More emphasis will be put on condensate collection studies since these methods are a key part of our research.

Collection of whole smoke condensate by Elmenhorst cold trap (ECT) or impaction trap (IT) procedure will continue, along with processing, for *in vivo* testing. This involves gc analysis and concentration testing on these samples. Selected ECT or IT trapped and processed samples will be checked for volatile and nonvolatile nitrosamines.

The collection of samples for *in vitro* and chemical study has been expanded to ECT, IT, TPM pad, gas phase, and collection in liquids. Some of these methods will require further development. In addition, design and application of sidestream collection systems has begun. Considerable effort will be required to develop satisfactory methodology in the coming year.

A study of volatiles not collected (IT) or lost during processing (ECT) has also been initiated and will continue. A longer range study of a glass cascade impaction trap for a particle size profile is planned. This could be extended to chemical and biological evaluation of each size fraction.

A system will be set up in the coming year for pyrolysis or combustion of filler and collection of the smoke for either chemical or *in vitro* assay. After the equipment has been obtained an extensive check of conditions will be made for possible correlation of pyrolyzate and WSC biological activity. The application of this methodology to evaluation of a series of bright marcs is also planned.

### B. Chromatography

Improved separation procedures will allow both the investigation of new areas and more complete investigation of areas previously studied.

Extensive modification of the PE-900 for use with fused silica capillary columns is progressing.

The Sigma 3 gc, which is coupled to the du Pont 21-490 mass spectrometer, has capillary capability. To permit the exploitation of this feature on the 21-490 ms will require considerable effort due to limitations in the ms system. Acquisition of capillary capability for the gc/ms, if possible, will be a significant advance in our capabilities.

A low pressure lc system has been designed and will provide a flexible preparative or isocratic analytical chromatography system. Major initial emphasis will be on reversed phase chromatography applications to base fractions from X6D31M (burley) WSC.

It is anticipated that a number of new hplc separations will be made possible by the acquisition of a second high performance, gradient analytical lc system in 1980. This will provide sufficient capability both to develop new methods and to put developed methods into routine use on the present instrument (Spectra Physics 3500B).

Droplet counter-current chromatography is a method not previously investigated for WSC fractionation. An effort toward a col-

laborative evaluation of the methods potential in areas of interest to us will be made.

### C. Nitrosamines

The procedure for volatile nitrosamines is well developed but application of this technique on new samples will continue. The general method will also be applied to correlation of tobacco precursors with nitrosopyrrolidine in smoke. Work with sidestream and processed WSC is also planned.

We have been delayed in development of methods for nonvolatile nitrosamines by sample load but work in this area will be initiated in the first quarter of 1980. Of interest is N-nitroso normicotine (NNN), 4-(N-methyl-N-nitrosamino)-1-(3-pyridyl)-1-butanone (NNK), and N-nitrosatubine (NAB). A hplc has been interfaced to the thermal energy analyzer (tea) for these analyses, but we also will explore the possibility of using gc/tea for these so called nonvolatile nitrosamines. Initial work will concentrate on mainstream smoke, but extension to sidestream is possible in the future.

### D. Base Fraction of X6D31M (burley)

The isolation and identification of individual active base fraction components has proven difficult. Nevertheless, the high microsome dependent activity shown by these fractions requires a further effort at identification. Of particular importance will be the improve chromatography methods described in section B. Further use of model compounds is planned for improvement in fractionation and identification procedures.

### E. Model Cigarettes: Chemical Studies versus Salmonella Activity

A series of 14 cigarettes (varying tobacco fillers) has been selected for a number of chemical evaluations. In addition, the *Salmonella*/microsome activity of each WSC and base fraction will be evaluated. We hope to better understand the influence of filler parameters on base fraction activity and yield and also the levels of some specific components in WSC from various tobacco types. Planned chemical studies include: a) TMS derivatization of the WSC and capillary gc profile generation. Pattern recognition analysis of data versus *in vivo* estimated activity and/or *in vitro* activity. Use of the gc profile method on base fractions. b) The quantitative hplc procedure for quinoline in WSC will be applied. The determination of additional aza-arenes in these fractions is also a possibility. c) A procedure for harmene and norharmane in the base fraction will be developed. This hplc procedure will also be applied to the set of model WSCs. d) A gc method for nicotine will be applied to the base fractions. e) We hope to be able to develop an hplc method for amino  $\alpha$ - and  $\gamma$ -carbolines (tryptophane pyrolysis products) in the base fraction. When available, this procedure will also be applied to the model WSC samples.

In addition to these studies, cigarettes have been prepared by adding proline, tryptophane, or phenylalanine to LTF-IIA (nitrogen free) filler. A study of the active base fraction components from these fairly simple model systems is planned with emphasis on the tryptophane spiked sample.

### F. Bright Tobacco Extraction

Work is continuing on the fractionation of bright tobacco in order to study the effect of removal of various classes of nitrogen containing compounds. Increased emphasis will be on the chemical components of each marc and extract, particularly the amino acid composition of protein fractions and the nature of the nonprotein nitrogen components.

When acceptable pyrolysis conditions are available, this method will be used for evaluation of each marc.

### G. MW 288

The positive identity of this smoke component has remained unsolved, primarily due to our problems with selective ozonolysis and derivatization of model compounds. A synthetic approach to this compound is being pursued by Dr. Edwards. We are considering the possibility of the preparation of a crystalline derivative suitable for an x-ray structure study.

The cuticular wax of bright and burley tobacco has been obtained. We hope to establish that duvatrenediols produce MW 288 under appropriate thermal conditions. Further, we expect to find out if each isomer of duvatrenediol leads to one specific MW 288 isomer.

### H. E. coli Assay and Aldehydes

The *E. coli* assay has previously defied attempts to determine which components of smoke are principally responsible for activity. This may no longer be the case. Evidence has been accumulated that some aldehydes are highly active in the assay. Progress has been made in trapping and derivatizing both whole smoke and gas phase smoke. An hplc method for the dinitrophenyl-hydrazone of reactive carbonyl components is almost finalized. We will attempt to definitely establish the quantitative importance of the smoke aldehydes in this assay.

### I. Additional Areas

There are a number of additional areas of opportunity and interest which do not fit into the areas already discussed or are of lower priority for study. Investigation in at least some of these areas is planned as time allows.

(a) Some initial work has been done with activity in fractions in the yeast assay. We wish to find the types of components responsible for the activity seen in WSC by fractionation studies.

(b) LTF-IIA plus phenylalanine-continuation of gc and gc/ms studies for products from phenylalanine in model cigarettes.

(c) Develop methods for N-heterocycle analogs of PAHs in smoke.

(d) Further study of the red material formed in ECT smoke of nitrate cigarettes and see if addition of NO to smoke will produce this band on ECT.

(e) Explore the utility of gel permeation chromatography both for WSCs and for condensate fractions.

(f) Explore the effect of added sugars or sugar-amino acid reaction products in modulating the activity arising from proteins and amino acids in tobacco.

(g) Study the mass spectra of geometric isomers of aldehyde O-methylloximes.

(h) A tobacco glycoprotein may be transferred to smoke. If so, an understanding of the parameters controlling this transfer would be of great use. A capability for isolation of such material will be developed.

(i) Fluorescence is a very useful tool in a number of areas. Additional evaluation of the utility of fluorescence for studies of smoke components and evaluation on commercial instrumentation needs to be made.

(j) Is 3-nitro-5-(3-pyridyl)-pyrazole formed on ECT collection of smoke from high nitrate cigarettes?

(k) Develop and apply chemical/physical indicators of estimated *in vivo* biological activity.

## III. CONCLUSION

These plans and objectives represent some redefinition of the project's goals. There is more emphasis on the development of smoke collection technology and its impact on WSC chemistry. Also greater emphasis is on chemistry coupled to actual *in vitro* (particularly *Salmonella*/microsome) activity rather than estimated *in vivo* activity has been dropped as a research goal. Finally, capillary gc and various hplc methods have been given a high development priority in our planning.

## IV. PLANS

## Activity: Timetable

A. Condensate Collection, Preparation, Analysis

1. Current Test Samples: Ongoing\*
2. ECT and IT for *in vitro* and chemical study: Ongoing
3. Alternate collection—TPM, solvent impaction, sidestream: 4th qtr., 1979 through 4th qtr. 1980
4. Volatiles and semivolatiles lost in collection and processing: complete 2nd qtr.
5. Pyrolysis setup and experimentation: Initiate 1st qtr.

## B. Chromatography

1. Capillary gc on PE 900
  - (a) Derivatized WSC: Complete 3rd qtr.
  - (b) Fractions: Initiate 2nd qtr.
2. Evaluation of capillary gc/ms: 1980
3. Low pressure lc system: Assemble 1st qtr.
4. Analytical hplc
  - (a) New system installation: 1st quarter
  - (b) New methods development: Ongoing
  - (c) Gel Permeation: 1980?
- C. Nitrosamines
  1. Volatile nitrosamines: Ongoing
  2. Nonvolatile nitrosamines: Initiate 2nd qtr.

## D. MW 288

1. Structure: Complete 3rd qtr.
2. Duvatrienediols as precursors: Complete 4th qtr.

E. *Salmonella*/microsome assay

1. XGD31M base fractions: Ongoing
2. Base fractions from Model cigarettes
  - (a) Yield and activity: Complete 1st qtr.
  - (b) Chemical constituents: Initiate 1st qtr.
3. Bright tobacco macs and extracts: Ongoing

## F. LTF-IIA plus additives: 1980

1. Aldehydes and *E. coli* activity: Complete 3rd qtr.

## G. WSC fractions and yeast assay: Initiate 1st qtr.

## H. Additional Areas

1. Chemical predictors of EBA: In 1980 as time permits.
2. Polycyclic nitrogen heterocycles
3. Red bands in ECT smoke
4. Tobacco glycoprotein
5. Application of fluorescence
6. Basic ms studies—oximes
7. Sugar effect on WSC activity
8. Droplet counter current distribution

\*Completion in 1980 is not anticipated for any ongoing projects.

To: Dr. E.B. Sanders

From: J.I. Seeman

Subject: Plans and Objectives for 1980 (Charge 2500)

Date: January 4, 1980

Work for 1990 will be focused in three general areas: alkaloid and nicotine chemistry,

flavor chemistry, and flavor-release chemistry. In addition, we will continue to perform assistance to other units upon request in such areas as custom synthesis and general organic chemistry.

## I. Alkaloid and Nicotine Chemistry (Chavdarian, Secor, plus one).

## A. Objectives

1. To develop a fundamental understanding of the mechanisms by which nicotine and other tobacco alkaloids interact with peripheral and central nervous system receptors.

2. To determine if nicotine analogues can be designed which exhibit differential activity at different receptors.

3. To develop procedures to synthesize nicotine analogues and isotopically labeled nicotine analogues.

4. To investigate the possible correlation of structural and chemical parameters with biological behavior.

5. To perform, in a collaborative fashion, pharmacological testing of nicotine and its analogues with a goal of deriving structure-activity relationships.

6. To develop an effective insecticide(s) through collaborative testing of nicotine analogues; in this conjunction, the mode of action(s) of these compounds will be investigated.

7. To aid other groups with problems related to tobacco alkaloids.

## B. Synthetic Studies

## 1. Preparation of Optically Active Nicotinoids

a. Procedures will be developed which will allow the separation of racemic norcotine derivatives into their enantiomers. This will involve the HPLC purification of, a.g., norcotine urethanes which are diastereomeric by virtue of the norcotine condensation reagent.

b. We have already shown that 6-methylnicotine and 6-butylnicotine can be formed in high yield from nicotine by reaction with methylolithium and butyllithium respectively. This procedure will be extended to other 6-substituted nicotinoids.

c. Microbiological reduction of 3-acetylpyridine has been shown to result in the optically active alcohol. Attempts to convert this alcohol to the corresponding amine will be made. If successful, this procedure will be applied to an asymmetric norcotine synthesis.

d. We have found that cotinine can be alkylated and carboxylated at C-4'. The products can subsequently be reduced to 4'-substituted nicotinoids which are optically active by virtue of asymmetry of cotinine. This work will be extended to a few additional analogues.

e. 5-(3-Pyridyl)butyrolactone, obtainable from procedure I.B.1.c. above, may be convertible to active norcotine with ammonia.

f. The microbiological reduction of imines (e.g., myosmine) to saturated amines (e.g., norcotine) may result in an optically active product. There are no examples of such a reduction in the literature. This will be examined.

## 2. Preparation of Pyridine-Substituted Analogues

a. 5- and 6-Substituted nicotinoids will be prepared by a variety of methods, including the reaction of nicotine with alkylolithium reagents (c.f. I.B.1.b.) and routes involving synthesis of substituted nicotinonitriles and methyl nicotines. These will also include heterosubstituted nicotinoids. Optically active 6-hydroxynicotine will be prepared from microbiological oxidation of nicotine. This

material will be used as the key intermediate in the preparation of 6-alkoxy and 6-acetoxy derivatives.

b. Nicotine 6-carboxylic acid and nicotine 5-carboxylic acid and their corresponding esters will be prepared.

c. 2,4-Dimethylnicotine and selected deuterated analogues will be prepared for mechanistic studies.

## 3. Preparation of Pyrrolidine Substituted Analogues

a. HPLC purification will be performed to purify numerous isomeric methylated nicotinoids.

b. 2-Substituted analogues will be prepared by addition of organometallic reagents to N-methylmyosmine perchlorate.

c. A number of N'-substituted norcotinines in their enantiomeric forms (c.f. I.B.1.a.) will be prepared.

d. 4-Substituted nicotinoids will be prepared (c.f. I.B.1.d.).

e. Additional examples of 3-alkylnicotines will be prepared by condensation of 3-pyridinecarboxaldehyde and Michael acceptors.

f. Anatabine will be prepared from the reaction of 3-pyridylithium (or 3-pyridylmagnesium bromide) and 2-cyano-Δ<sup>4</sup>-piperidine.

g. Simple syntheses of nicotine will be investigated, for example, by the reaction of 3-pyridylithium with a protected 4-hydroxypyrrolidinone.

h. Δ<sup>3</sup>-4'-Dehydronicotine will be prepared, either by reduction of methylnicotine (c.f. I.B.3.g.) or dehydration of 4'-hydroxynicotine (c.f. I.B.1.d.).

4. Preparation of Bridged Nicotines. This type of nicotinoid represents the most difficult challenge in the synthesis of nicotine analogues. In the past year, one member of this class has been prepared in a one-step procedure from tropinone and β-aminoacrolein.

Note that the carbon atoms which have the "bold-faced" dots can be interchanged with the pyridine nitrogen atoms of these compounds to produce isomeric bridged compounds. Ideally, the preparation of the "pairs" of compounds will be successful.

5. Ring-Ring Shifted Nicotinoids. A number of compounds falling into this class have already been prepared.

## C. Mechanistic Studies

1. Kinetic experiments and stereochemical evaluations of the alkylation of a wide variety of nicotinoids with iodomethane and possibly other alkylating agents will continue. These experiments are aimed to allow an understanding of the steric, electronic, stereoelectronic, and conformational features present in these systems. Implementation of the totally automated conductivity system is anticipated to be a milestone in such kinetic investigations.

2. Protonation studies will continue to allow the evaluation of the conformation of the N-methyl group in these nicotine analogues.

3. NMR studies will be used as in the past to derive conformational information about these molecules.

4. Theoretical calculations (INDO, Ab Initio) will be performed to give information regarding conformation, electron distribution, polarizability, etc., of these molecules.

5. Kinetic studies involving α-cyanoamines will be performed.

D. Microbiological Studies. In collaboration with B. Semp, a number of studies involving the use of microbiological techniques to perform a variety of synthetic operations will be investigated (c.f. I.B.1.c.;

I.B.1.e.; I.B.1.f.; I.B.2.a.). Also included will be an attempted large scale preparation of normicotine from nicotine.

#### E. Pharmacological.

1. Efforts will continue to obtain peripheral and central nervous system data on our compounds. Some of this will be with the aid of C. Levy and her associates.

2. Partition coefficients and pK<sub>a</sub> data are needed for our compounds.

F. Insecticidal. More racemic and optically active nicotine analogues will be submitted for in-house and collaborative testing.

To: Those Listed Dr. T.S. Osdene, Dr. E.B. Sanders, Dr. W.L. Dunn, Mr. J.L. Charles, Dr. J.I. Seeman

From: R.B. Sellgman

Subject: Nicotine Receptor Program—University of Rochester

Date: March 5, 1980

As you know, we have been supporting the subject program for the past year, and Dr. Abood has visited with us several times during this period. I would like an *independent written* evaluation from each of you concerning the benefits this program brings to our Research Center.

Please transmit these reports to me by March 21.

To: Dr. R.B. Sellgman

From: J.L. Charles

Subject: Nicotine Receptor Program—University of Rochester

Date: March 18, 1980

Nicotine is a powerful pharmacological agent with multiple sites of action and may be the most important component of cigarette smoke. Nicotine and an understanding of its properties are important to the continued well being of our cigarette business since this alkaloid has been cited often as "the reason for smoking" and theories have been advanced for "nicotine titration" by the smoker. Nicotine is known to have effects on the central and peripheral nervous system as well as influencing memory, learning, pain perception, response to stress and level of arousal.

It is not surprising that a compound with such a multitude of effects would have properties which are considered undesirable by the anti-smoking forces. Claims are made that nicotine in cigarette smoke can induce chest pain and irregularities in cardiac rhythm when a person with a compromised cardiovascular system smokes or when persons with cardiac disease are exposed to high concentrations of side stream smoke.

For these reasons our ability to ascertain the structural features of the nicotine molecule which are responsible for its various pharmacological properties can lead to the design of compounds with enhanced desirable properties (central nervous system effects) and minimized suspect properties (peripheral nervous system effects). There are many opportunities for acquiring proprietary compounds which can serve as a firm foundation for new and innovative products in the future.

The above is an excerpt from an introduction to the nicotine program which I wrote on 12/1/78. My views have not significantly changed since that time. I believe that nicotine does play an important role in the smoking process. How important that role is remains to be determined. The receptor program at the University of Rochester is an integral part of the nicotine program and can be justified in a number of ways. An initial

thought was that Dr. Abood would have the knowledge and techniques to perform screening of nicotine analogs for CNS activity. The synthesis group has created a number of interesting compounds which are now being screened by Dr. Abood. In addition Dr. Abood was to carry out fundamental studies on sites and mechanisms of action of nicotine in the brain. That research is in progress.

I sat in on an additional meeting with Dr. Abood and Drs. Sanders, Seeman, and Chavdarian during Dr. Abood's last visit. I found the discussions to be useful and felt that Dr. Abood was doing some very interesting work which can ultimately be of benefit to Philip Morris. I also utilized Dr. Abood as a consultant during that visit and he made some good suggestions and I thought the time was well spent.

In summary, the nicotine receptor program at the University of Rochester is an integral part of our overall nicotine program. The combination of basic research on the pharmacology of the nicotine receptor combined with the capability to screen nicotine analogs for CNS activity complements our internal synthetic and behavioral efforts in the nicotine program. The program is justified in my view as a defensive response to the anti-smoking forces criticisms of nicotine and also as fundamental research into the nature of our product and how it affects our customers, the smokers. This entire program involves complex technological problems and the benefits to be derived from the program will not be realized immediately. Indeed the benefits will necessarily be of a long-term nature and may have direct bearing on our market position in a 10-15 year time frame. However, if we do not have the basic research results this program will provide we will not be in a position to respond if and when the pressures to change do occur.

To: Dr. R.B. Sellgman

From: E.B. Sanders

Subject: Nicotine Receptor Program—University of Rochester

Date: March 21, 1980

Dr. Leo Abood's collaboration with the Research Center has been extremely beneficial to the nicotine program. His assistance has impinged on four different areas; namely, direct assistance to the Behavioral Research Group, assistance in interpreting peripheral testing results, providing us with current information regarding work concerning nicotine pharmacology at other locations, and direct hands on work in setting up binding assays for nicotine analogues synthesized by members of Charge Number 2500.

Dr. Abood's interaction with the Behavioral Research Group has been of crucial importance in establishing the "prostration syndrome" test. The value of this particular technique to the nicotine program cannot be overstated in that it is the first biological response to nicotine that does not appear to be mediated by a cholinergic receptor. The original charge of the nicotine program was (1) to ascertain if the central and peripheral effects could be "separated" and (2) to design a nicotine analogue which would have CNS activity equivalent to nicotine with little or no peripheral effect. Since it has been well-established that nicotine's peripheral effects are cholinergic, the discovery of a non-cholinergic central receptor provides us with reason to believe in the ultimate success of the program.

Future work involving the "prostration syndrome" must unequivocally establish the non-cholinergic nature of the receptor and

must explore the role that the "prostration syndrome" receptor plays in the psychology of smoking. Leo's expertise, involving his experience in the necessary methodology as well as his work in attempting to characterize the natural neurotransmitter for this receptor, is crucial to the vigorous prosecution of this work.

For several years we have been receiving data on peripheral screening of our nicotine analogues from Germany. The quality of the work has been consistently of the highest calibre. On the other hand, the German laboratory has been of minimal assistance regarding interpretation. The problem is a combination of our lack of pharmacological sophistication coupled with the large distance between Richmond and Cologne. We have existed with this problem for some time since it would be virtually impossible to match the good service we are getting elsewhere. Leo Abood's association with Philip Morris has consequently filled a void. Not only have we been able to get a better handle on both the meaning of a given test result but possible interesting follow-up tests on *certain analogues* as well.

Dr. Abood has occupied a position of pre-eminence in neuropharmacology for some time. Consequently, he has contacts with virtually all of the laboratories working on various aspects of nicotine pharmacology, throughout the country. These contacts have benefited us by keeping us abreast of interesting current developments as well as in more direct ways. The best example of the latter involves the direct assistance Leo is providing us in carrying out binding assays for our synthetic analogues. Leo has obtained a sample of purified nicotinic receptor from Torpedo and has established the experimental conditions for assaying binding to the receptor. We are now in the process of sending out the first set of compounds. This assay will allow us to differentiate between compounds which bind to the nicotinic receptor but do not activate it and those compounds which do not bind. With this information we hope to get a clearer picture of the nicotinic receptor.

In summary, I feel that we have benefitted considerably from Leo's association with the Research Center, and I trust that this association will continue.

To: Dr. T.S. Osdene

From: W.L. Dunn

Subject: Plans and Objectives—1981

Date: November 26, 1980

#### INTRODUCTORY NOTES

The Behavioral Research Laboratory effort is organized into programs which reflect to a large degree the disciplines of the responsible psychologists. On the one extreme of the psychological spectrum is the social psychology program of Dr. Sandra Dunn. On the other extreme is the behavioral pharmacology program of Dr. DeNoble. Ranging between are the experimental psychology program of Mr. Ryan, the electrophysiology program of Dr. Gullotta and the smoke inhalation program of Miss Jan Jones. Each of these programs is but a varied attach upon the overall objective of the Behavioral Research program: To contribute useful knowledge about the response of the smoker to the cigarette and its smoke. The results may prove useful in developing a new product, or improving an existing product, or in the defense of the company from legislative or litigative harassment.

# **ELECTROPHYSIOLOGY PROGRAM** *Gullotta and Shultz*

## **Objectives:**

It is our belief that the reinforcing properties of cigarette smoking are directly related to the effects that smoking has on electrical and chemical events within the central nervous system. Therefore, the goals of the electrophysiology program are to: (I) Determine how cigarette smoking affects the electrical activity of the brain, and (II) Identify, as far as possible, the neural elements which mediate cigarette smoking's reinforcing actions.

## **Planned Studies**

### **I. SPECTRAL ANALYSIS OF THE ELECTROENCEPHALOGRAM**

We have proposed this study in the past but, due to technical problems, we have been unable to undertake it. We are finally in a position to begin.

Numerous studies have investigated the effects of cigarette smoking and nicotine administration on the electroencephalogram (EEG) of man and other animals. Although there is some degree of concordance among the results of these studies, many points are yet to be resolved. For example, with regard to the human literature, an early study showed that cigarette smoking produced low amplitude, fast EEG activity. Another study, however, found that smoking did not increase low amplitude fast activity and, indeed, slowed certain EEG frequencies. A number of other examples of this type can be found in the literature.

It seems likely that most of the controversies could be resolved by a more systematic analysis and quantification of the EEG. Therefore, we plan to spectrally analyze EEG data from a variety of electrode locations under varying smoking and deprivation conditions.

### **II. Animal Electrophysiology**

We have discussed with Dr. DeNoble the possibility of a collaborative effort to study the effects of nicotine and nicotine-like compounds on the electrical activity of the rat brain. This would involve EEG recordings from surface and deep structures within several experimental paradigms. It would also involve the use of evoked potential technology. Some technical problems must be solved before such a program can be initiated. Our early efforts will be aimed at addressing these technical considerations.

### **III. The Effects of Cigarette Smoking on Pattern Reversal Evoked Potentials**

This study is well under way and will be completed in early 1991.

We have previously demonstrated that cigarette smoking increases the amplitude of the late components of the visual evoked potential to flash stimulation. However, since flash stimulation activates nonspecific brain structures (e.g., reticular formation, association cortex, etc.) as well as specific structures (e.g., primary visual cortex), we were unable to determine with certainty whether the enhancement we observed was due specifically to increased receptivity to visual information.

Pattern stimulation avoids the problems associated with flash by activating primarily visual structures. Therefore, we are using pattern reversal evoked potentials to checkboard stimulation to study the effects of cigarette smoking on visual information processing.

# **IV. Cigarette Smoking and the Habituation of Pattern Reversal Evoked Potentials**

It is commonly reported that cigarette smoking facilitates one's ability to concentrate. Concentration implies sustained attention to simulation. We are interested in the possibility that we might gain insight into the processes involved by employing evoked potential techniques.

When, within a given session, sensory evoked potentials are repeatedly measured, there is a decrement in the response over trials. We interpret this decrement as a decrease in the sensitivity of the system to incoming sensory information. We can then ask whether cigarette smoking alters the rate at which this decrement occurs. If smoking retards the rate at which the evoked potential decreases in amplitude over trials, we will have demonstrated one manner in which concentration might be facilitated by cigarette smoking.

We have recently been gathering pilot data on this subject employing pattern reversal evoked potentials. If our data look encouraging we will mount a full-scale investigation in early 1991.

# **V. Cigarette Smoking and the Brainstem Auditory Evoked Potential**

Recently, a new class of evoked potentials have been described. These are the acoustic and somatosensory brainstem (far-field) evoked potentials. One of the advantages of these brainstem potentials relative to the more traditional forms of recording is that the neural generators of the components are better known. For example, it has been shown that Peak I of the auditory brainstem response is due to VIIIth nerve activity, Peak II to activity of the cochlear nucleus, etc..

In this experiment we will be employing brainstem auditory evoked potentials in an attempt to ascertain sites and modes of action for centrally active smoke constituents. We chose the auditory potential because (1) there are nicotinic cholinergic synapses within the system and (2) it has recently been shown that, in rats, systemic nicotine administration alters certain components of the response.

# **THE BEHAVIORAL PHARMACOLOGY PROGRAM** . . . DeNoble

## **Objectives**

I. To develop a better understanding of the behavioral pharmacological actions of nicotine, particularly the action which reinforces smoking behavior.

II. Develop the empirical evidence which differentiates nicotine from the classical abuse substances.

III. Use behavioral pharmacological methods for evaluating the nicotine-likeness of nicotine analogues.

## **Planned Studies—I. Nicotine Self-administration**

A successful development of the technique for establishing self-administration of nicotine in an animal has important implications for all three objectives of our behavioral pharmacology program.

We have developed that technique, making it quite clear that nicotine can function as a positive reinforcer for rats. We will use the technique (1) in studying the reinforcing action of nicotine, (2) in differentiating nicotine from the classical abuse substances, and (3) in evaluating analogues.

We will undertake as many of the following essential self-administration studies in 1991 as time permits:

(1) Examine the dose-response curve under various schedules.

(2) Examine the effects of cholinergic antagonists upon self-administration.

(3) Determine substitutability of selected analogues.

(4) Demonstrate, in pursuit of Objective III, that (a) nicotine self-administration does not interfere with on-going behavior and (b) that termination of nicotine availability for self-administration does not produce behavior impairment, or alter self-administration of other reinforcers (food, water, saccharine, etc.).

## **II. The Nicotine-Induced Prostration Syndrome**

The prostration syndrome, first reported by Leo Abood as a gross behavioral response to the intraventricular infusion of nicotine, has been used routinely for several years in our program of nicotine analogue evaluation.

Although the prostration syndrome is a reliable screen for behaviorally active nicotine analogues, the rating scale developed by Dr. Abood provides only descriptive interpretation of the compounds' effects, and does not permit a determination of possible prolonged changes in CNS activity. We have begun using scheduled controlled behavior to evaluate the effects of intraventricular injections, since measures based upon this behavior have been shown to be more sensitive than activity rating scales, and provide a more stable nicotine baseline from which to evaluate CNS recovery times for nicotine analogues.

We have recently observed in conducting these studies that there is a diminution of the effect of nicotine over repeated administrations. Diminution will occur even with a 7 day interval between the first and the second administration, and observation difficult to explain simply in terms of the development of metabolic tolerance. We may be observing instead an instance of behavioral tolerance. We are currently designing a study which should more accurately characterize the development of tolerance.

We will also be conducting studies in which the effects of the selective blockade of neural structure will be reflected in the behavioral components of prostration, anticipating that these observations can further our knowledge about the sites of action of nicotine.

## **III. Discrimination Studies**

We will continue to use the now standardized discrimination technique to evaluate nicotine analogues. We are currently investigating a dose-response curve approach, a modest variant on the standard procedure.

# **THE EXPERIMENTAL PSYCHOLOGY PROGRAM**

## **Objectives**

1. To gain a better understanding of the role of nicotine in smoking.

2. To study basic dimensions of the cigarette as they relate to cigarette acceptability.

## **Planned Studies—I. Salivary Nicotine**

Speculation suggests that smokers modify smoking behavior to maintain certain levels of nicotine in the blood. Historically this has been the basis of nicotine titration hypotheses. Knowledgeable consideration of the issue suggests that the changes in level may be more important than the absolute levels—that the input of nicotine from a cigarette creates a "spike" which is the summation of the discrete puff-induced spikes.

We now have the ability to measure via gas chromatograph the level of nicotine in saliva. Observations from previous work with salivation and smoking suggest that systemic nicotine in saliva tracks with systemic nicotine in the blood. We plan to use the g.c. measure to:

A. Monitor the appearance and decline of nicotine in saliva following smoking. This will shed light on the question "Does a low systemic level of nicotine trigger the smoking response." The question can only be answered if measures are made many times. Therefore, we will:

B. Observe changes in salivary nicotine level across time and smokings, relating the changes to the delivery of cigarettes smoked and the time since prior smokings. The data will bear upon the issue to the extent that salivary nicotine reflects tissue and blood levels of nicotine. This must be confirmed by means of:

C. A correlational study of the salivary nicotine with blood nicotine. This is awkward research to perform because the taking of blood samples is so intrusive and objectionable to participants and because it requires medical supervision. Therefore, we will postpone this segment of the research until it is evident that there are some systematic changes in the salivary nicotine data. We have made some preliminary contacts with our medical staff, and they will support us when needed.

II. There are tentative plans for one other project in which nicotine will be delivered intravenously in different sized spikes of different duration, to yield a broader picture of the role of the spike, the level, and the reinforcement characteristics of the substance. The execution of this project is contingent upon the execution of study I-C above, since both involve the dosing of numerous subjects with nicotine.

### III. Other smoking related research

1. Role played by Cigarette Firmness in determining cigarette acceptability. Much attention has been paid to the problem of maintaining the firmness of our cigarettes at a level consistent with the image of a high quality product. We have recently found that a trained panel's evaluations of firmness are highly correlated with the firmness data provided by the Firmness-while-smoking machine and our compacimeter procedures. However, we know neither the relative importance of firmness to the consumer (compared to other characteristics of the cigarette's appearance) nor the most desirable firmness level. We will try to find out.

IV. Support for other projects, within R & D and within behavior research, will be provided, as necessary.

### SOCIAL PSYCHOLOGY PROGRAM S. Dunn

#### Objectives

I. To gain a better understanding of the role of social psychological factors in shaping cigarette smoking behavior.

II. To apply social psychology techniques to the study of cigarette acceptability.

#### Planned Studies—I. Exploratory Study on Psychosocial Determinants of Smoking Behavior

As an initial approach to the problem, we have designed a one-on-one interview including both objective questions and in-depth probes. This interview is an intensive two-hours of data gathering, ranging across a spectrum of social, personality, attitudinal and situational dimensions. The dimensions were chosen for inclusion because of their

potential relevance to smoking behavior. Items included in the questionnaire/interview schedule can be subsumed under these headings:

1. Emotional state and responsivity.
2. Stress-handling mechanisms.
3. Situational determinants and cues.
4. Socio-cultural influences.
5. Health concerns and smoking.

Interviewees are being drawn from among the population of 45 year-old, white, college-educated, upper-middle class women, half of whom smoke high-delivery cigarettes and half of whom smoke ultra-low delivery cigarettes. Focus on these groups will also provide data on women smokers and on the factors determining choice of delivery level.

The data obtained will be subjected to a statistical analysis designed to identify the underlying higher order factors. The nature of these factors, and the extent of their influence upon smoking behavior will provide the basis for further studies. The analysis is scheduled for completion by the end of the first quarter of 1981. Upon completion of this analysis we will generate hypotheses testable under rigorous, laboratory-controlled conditions.

### II. The Influence of Cigarette Firmness Upon Cigarette Acceptability

Mr. Ryan has reported a study of the correlation of subjective firmness with measures obtained on the Firmness-while-smoking machine and on the compacimeter. The question has been raised as to what relevance, if any, these measures have to cigarette acceptability. We are designing a study that will address this question. The study will incorporate interview techniques of social psychology rather than rely upon conventional marketing research survey methods.

### III. THE INHALATION MONITORING PROGRAM . . . Jones

Objective: To determine in what manner the smoker alters simulation patterns in response to changes in the chemical composition of cigarette smoke.

#### Planned Studies—I. Instrumentation

A. *Exploratory research using the new recording system.* The literature on smoke-laden inhalation research is limited, and that which does exist suffers from severe technological constraints. Our inhalation monitoring system provides us with the advanced technology necessary to acquire fundamental information about inhalation behavior. We are immediately concerned with establishing valid and reliable criteria for determining when a subject's inhalation patterns have stabilized—at what point we are seeing a reproducible representation of the subject's inhalation behavior. In designing our experiment we must determine what would be sufficient time within each period of data collection for the smoking behavior to stabilize, before introducing a new experimental condition. Other information which is related to experimental design involves what happens to baseline behavior, established on a smoker's own cigarette, following experimental conditions. Is there a return to baseline inhalation behavior or will the baseline readjust? Carry-over effects resulting from the use of repeated measures may occur and must be taken into account.

B. *Programming a dedicated minicomputer for data display and analysis.* The MINC/DECLAB minicomputer, expected to arrive early in 1981, will be used to store and display the quantities of information collected. Follow-

ing our programming efforts, the computer will be customized to handle the high-speed analyses required for our specific needs.

II. Experiment # 11: Does the smoker demonstrate compensatory inhalation behavior in response to changes in the nicotine content of cigarette smoke?

The experimental design is repeated measures with an ABACA format—a powerful method for examining what happens to inhalation patterns when a smoker switches between cigarettes of high, low, and ultra-low nicotine delivery. Baseline measures will be taken on the smoker's own low delivery cigarette until we observe stable behavior. The smoker will then switch to an ultra-low or high delivery experimental cigarette for two weeks, the order of presentation being balanced across subjects. Following each experimental condition, the smoker will switch back to his own cigarette to re-establish baseline behavior. Our primary interest is in comparing one inhalation parameters of Condition B with Condition C, demonstrating differences due to nicotine delivery of the cigarette smoked. The other 3 conditions will mainly serve to make this information meaningful.

We will be collecting data for approximately 2 months on each subject. The study will begin early in 1981 and is expected to continue throughout the year.

### FRENCH NUCLEAR TESTS

THE SPEAKER pro tempore. Under a previous order of the House, the gentleman from American Samoa [Mr. FALÉOMAVAEGA] is recognized for 5 minutes.

Mr. FALÉOMAVAEGA. Mr. Speaker, once again I take the floor to express to my colleagues and to the American people my deep disappointment with a decision made recently by the President of the Government of France to explode eight nuclear bombs in the South Pacific, and each bomb explosion is ten times more powerful than the nuclear bomb dropped on the city of Hiroshima.

Mr. Speaker, I have just learned from media reports that some 47 parliamentarians from Australia and 11 from New Zealand, and several more parliamentarians from Austria, Japan, Denmark and Germany—all plan to travel to French Polynesia to protest the proposed nuclear testing program by the French Government which will commence in September of this year.

Mr. Speaker, I want to offer my support and commend the parliamentarians of all these countries for their commitment and convictions to tell the French Government leaders that France's proposal to explode eight nuclear bombs is just plain wrong and contrary to the wishes of some 28 million men, women and children who live in this region of the world.

Mr. Speaker, I also would like to make an appeal to my colleagues to join me by traveling to French Polynesia and let the French Government know that nuclear testing in the middle of the Pacific Ocean is an outmoded, ridiculous, and simply a dangerous undertaking not only for the

marine environment but the lives of the millions of men, women and children who live in the Pacific region.

Mr. Speaker, the President of France recently proclaimed that France was the homeland of the Enlightenment, and I have no doubt that some of the world's greatest thinkers—men of reason—men who appreciate and value human rights, and who respect the rights of others.

Mr. Speaker, again I ask—what possible reason is there to justify President Chirac's decision to explode eight nuclear bombs? He said in the interest of France—but what the concerns and higher interest of some 170 nations of the world that recognized the dangers of nuclear proliferation—the dangers of nuclear bombs being exploded in an environment that changes constantly because of seasons climatic conditions that produce earthquakes, hurricanes, cyclones; and another real serious danger to these French nuclear explosions, Mr. Speaker, is we have no idea what is going on below the base of this volcanic formation.

After some 139 nuclear explosions for the past 20 years inside the core of this volcanic formation—something has got to give—and if radioactive leakages start coming out of this volcanic formation within the next 10 years or even 50 years—my problem, Mr. Speaker, is that the 60 million French citizens living in France are going to continue enjoying the good things of life like drinking their French wines, while the millions of people who live in the Pacific are being subjected to radioactive contamination—let alone some 200,000 Polynesians, Tahitians, who incidentally are also French citizens—all, Mr. Speaker, are going to be the victims. Is this fair, Mr. Speaker?

Can Mr. Chirac honestly look at himself in the mirror—every morning and keep saying to himself that it is okay to nuke those islands out there in the Pacific, and that the lives of 200,000 French citizens in the Pacific are not important to the Government of France? What arrogance, Mr. Speaker.

Mr. Speaker, in the minds of millions of people around the world—the Government of France has committed a most grievous error by authorizing an additional eight nuclear bomb explosions to take place in certain atolls in the South Pacific.

Mr. Speaker, I would like to make this special appeal to my colleagues on both sides of the aisle and to my fellow Americans—make your voices heard—support the concerns of the millions of men, women, and children in the Pacific and around the world who do not support French nuclear tests—call and write letters to the Congress and the French Embassy here in Washington, DC—tell the leaders of France that exploding 1.2 million tons of TNT in an ocean environment is both dangerous, insane, and utter madness.

Mr. Speaker, tomorrow the House Committee on International Relations will consider House Concurrent Resolution 80, which expresses the strong sense of the Congress for recognition of the concerns of the nations of the Pacific region—a recognition also of the environmental problems that will attend these additional nuclear bomb explosions—and to call upon the government of France to stop these nuclear tests since about 70 percent of the people of France do not want nuclear tests to take place, and countries from Asia, the Pacific region, the Western Hemisphere, Europe—all do not want France to resume nuclear testings.

Mr. Speaker, I ask my colleagues to support House Concurrent Resolution 80, which already has the support of Members from both sides of the aisle.

Mr. Speaker, I include the following for the RECORD:

U.S. DOUBTS FUEL FEAR OF COLLAPSE ON NUCLEAR TEST BAN—PHYSICISTS MEET TO REINFORCE STAND

(By Charles J. Hanley)

Weeks before they light the fuse in the far Pacific, the French have set off an explosion of global protest with their plan to resume nuclear weapons testing.

But the nuclear future may depend less on what happens on a Polynesian island in September than on the outcome of a secretive meeting last week at a California resort, where leading physicists gathered to try to help a wavering U.S. government take a stand on a global test ban.

These latest developments—a decision in France, indecision in America—have suddenly cast a shadow over international negotiations to conclude a comprehensive test ban treaty by late 1996.

The Polish chairman of those talks in Geneva sounds worried.

"It's possible," Ludwik Dembinski said of reaching the goal. "But it will be very difficult."

Fifty years after the first atomic test explosion in New Mexico, on July 16, 1945, the nuclear powers have committed themselves to a 1996 target for banning the tests that over the years helped them build ever more compact, durable and finely tuned weapons.

But after 2,000-plus explosions in the Nevada desert, the central Asian steppes and the Pacific, some want the treaty to allow still more such "activities"—tests by another name.

Four declared nuclear powers—the United States, Russia, Britain and France—have observed a test moratorium since 1992. Last month, however, the French announced they would stage eight underground explosions at their Mururoa atoll site between September and next May.

The French say they need the tests to check the safety and reliability of their arsenal and to collect data, before a test ban, for later weapons work via computer simulation. But arms-control advocates say Paris mostly wants to use the tests to complete the design of a new warhead.

The U.S. government reaffirmed its adherence to the moratorium. But as attention focused on France, things were happening in Washington, too.

The United States had been expected to favor a test-ban loophole to let elementary

weapons work via miniature nuclear blasts underground, with explosive yields equivalent to no more than four pounds of TNT. In late June, however, it emerged that the Pentagon wants a much higher "threshold"—reportedly 500 tons, equivalent to the power of 300 Oklahoma City bombs.

In meetings last week, Clinton administration officials were trying to settle the U.S. policy dispute. None spoke publicly about the pending decision, but the heat was clearly on.

"There's a lot of pressure within the administration to go to a high threshold of several hundred tons," said one informed official.

The heat was felt all the way to Geneva. "Several hundred tons, in my personal view, is certainly not acceptable," Mr. Dembinski said in a telephone interview.

India's delegate to the 38-nation talks was more direct in rejecting the idea of any tests at all.

A test-ban treaty should mean "complete cessation of nuclear tests by all states in all environments and for all time," Satish Chandra, speaking for the Third World bloc, declared at one Geneva session.

India is key: If it refuses to sign a treaty, its undeclared nuclear-arms program would remain beyond international controls.

The Clinton administration, split between the military and other U.S. agencies favoring a near-zero threshold, turned for help to the "Jasons," a select group of independent scientists on call to advise the government. This panel of "wise men," first organized in 1958, is named after an inventive hero of Greek myth.

A knowledgeable source, insisting on anonymity, said a half-dozen Jasons—nuclear physicists—met in La Jolla, Calif., last week with government specialists to review the threshold issue.

Their talks ranged across an arcane realm where milliseconds make the difference between small "bangs" and unimaginable explosions.

In a two-stage thermonuclear bomb, a sphere of non-nuclear explosives is ignited and compresses an inner plutonium or uranium core to critical mass, setting off an atom-splitting chain reaction. This fission explosion compresses a second component, of light atoms, that fuse and give off heat in an even greater fusion explosion.

Minimal "4-pound" experiments are fission reactions aborted in their first moments. They are useful in weapon safety work—to determine, for example, that accidental ignition of the conventional explosives at only one point on the sphere produces just a small fission yield.

But Christopher E. Paine of the Natural Resources Defense Council, a Washington-based antinuclear group, says even minuscule experiments can aid weapons development.

By stepping up to yields of several hundred tons, the "experiments" open many more possibilities for designers, Mr. Paine said.

For one thing, weapons scientists could monitor the complete fission stage and modify designs as a result.

A zero-yield treaty would block the plans of U.S., French and other scientists for new bomb types—warheads for earth-penetrating weapons, for example, and variable-yield warheads.

The ultimate recommendation from La Jolla may have been foreshadowed in an unclassified report last year by Jasons who advised against even the smallest-yield tests

under a treaty. The safety and reliability of existing weapons can be ensured by non nuclear tests for the foreseeable future, it said.

The closed-door debates in America are of special interest in Moscow.

Some in the Russian military complex are looking for reasons to resume testing, said Vladimir Kozin, an arms-control specialist at the Russian Foreign Ministry. He said he fears the world will fall back into old habits.

"We are on the verge of reviving the arms race."

#### REPORT ON RESOLUTION PROVIDING FOR CONSIDERATION OF H.R. 2099, DEPARTMENTS OF VETERANS AFFAIRS, HOUSING AND URBAN DEVELOPMENT, AND INDEPENDENT AGENCIES APPROPRIATIONS BILL, 1995

Mr. SOLOMON, from the Committee on Rules, submitted a privileged report (Rept. No. 104-206) on the resolution (H. Res. 201) providing for consideration of the bill (H.R. 2099) making appropriations for the Departments of Veterans Affairs and Housing and Urban Development, and for sundry independent agencies, boards, commissions, corporations, and offices for the fiscal year ending September 30, 1996, and for other purposes, which was referred to the House Calendar and ordered to be printed.

#### REMOVAL OF NAME OF MEMBER AS COSPONSOR OF H.R. 1617

Mrs. SEASTRAND. Mr. Speaker, I ask unanimous consent to have my name removed as a cosponsor of H.R. 1617.

The SPEAKER pro tempore. Is there objection to the request of the gentleman from California?

There was no objection.

□ 2045

#### VIEWS ON BOSNIA

The SPEAKER pro tempore. Under a previous order of the House, the gentleman from Colorado [Mr. MCINNIS] is recognized for 5 minutes.

Mr. MCINNIS. Mr. Speaker, Members, I would like to talk to you tonight about the situation in Bosnia and as I see the situation in Bosnia. I have spent a great deal of time since a high school graduation a couple of months ago studying exactly what the issues are that we have on the conflict in Bosnia and let me tell you what inspired me to take a closer look at exactly what kind of commitment our President has made over there in that country, what objectives we have in that country, and what results we can expect as the result of our intervention in that country.

Mr. Speaker, what inspired me to do it was when I was sitting on the plat-

form of a graduation, having just spoken to the graduation class, and a young man, 18 years old, as he was walking across the stage to get his diploma, the person sitting next to me said, "That young man is going into the Marine Corps, and he is proud."

He is 18 years old and before long he could find himself committed to a country which he has never seen, probably never heard of, for a commitment that is unclear to me and unclear, I think, to many citizens in this country.

If that young man lost his life in his military service in the country of Bosnia, would I be able to go to his family, go to his mother and his father, and tell them that their son's life, or in some cases their daughter's life, was necessitated for the national security interests of this country? The answer to that is "no," and I think it is clearly "no."

That is what has driven me to spend a few moments with you tonight to talk to you about the situation in Bosnia. Of course, the President has led you to believe that there are several objectives that they hope to obtain in Bosnia.

One is humanitarian aid. Clearly, that has been an absolute disaster. The humanitarian aid has been few and far between. It has been scarce. The winter months have kept it out. A lot of people over there are suffering, because that humanitarian aid does not make it there.

Then the other purpose they come up with is an objective to moderate the war. United States involvement through the United Nations is not moderating that war. Take a look at the headlines in the last couple of days.

The other one is to pursue a diplomatic settlement. It is not going to happen. Do you know that war in Bosnia has been going on for over a thousand years? It was going on before Columbus set sail for the New World. And never in the history of this country have we successfully intervened in a civil war, and that is exactly what is going on in Bosnia. We have never successfully intervened in the civil war of another country, and this will not be an exception.

I think the elements we have to look at before we commit any further money or troops or time to Bosnia really is three- and fourfold:

One, do we have a national security interest in Bosnia? The answer is no.

Number two, do we have a clear objective? When we went to Kuwait, we had a clear objective. Iraq had invaded Kuwait. We had a border. We know that one party had gone over a border that they were not supposed to go over. Do we have that kind of objective in Bosnia? The answer is no.

What is another objective? Are our allies facing a national security threat

in Bosnia? The answer is no. Is there an economic threat to our country because of the civil war in Bosnia? The answer is no.

My opinion is, there is no clear objective in Bosnia. I think we have to take a look at what kind of commitment the President is willing to make.

First of all, the President relies on the United Nations. Mr. Speaker, take a look at this headline. And by the way, that number has gone up in the last couple of days. It says, "United Nations, for the 78th Time, Condemns the Serbs."

Folks, the United Nations is nothing more than a paper tiger. What is going to happen is, the United Nations is going to be put in there in a stronger and more forceful way and it is going to be the United States of America carrying that burden. It is going to be our young sons or daughters or grandsons and granddaughters that are going to be in Bosnia fighting a war that cannot be won.

What happens if we do find peace in Bosnia? The only way we can do it is to make a massive commitment of military ground troops, may be at least 100,000 troops. And the worst thing about it is, we are going to have to keep them there.

What happens if we do get that peace? How are we going to keep it? The only way we can keep it is a long-term military commitment, and this country is not prepared to make that kind of commitment with military ground troops in the country of Bosnia.

What do I suggest we do? I think it is fairly complicated, but rather simple on its face. One, lift the arms embargo on the Bosnian Moslems. Let them have a fair fight. What we have done is gotten engaged in a fight where we have tied the arms behind their back of one party in the fight and let the other one go at it.

We need to pull out of Bosnia.

Mr. Speaker, thank you for the time. I urge that we pull immediately out of Bosnia and lift the arms embargo.

#### THE STATUS OF SOCIAL SECURITY AND MEDICARE AS REVEALED IN THEIR ANNUAL REPORTS

The SPEAKER pro tempore. Under a previous order of the House, the gentleman from Ohio [Mr. HOKE] is recognized for 5 minutes.

Mr. HOKE. Mr. Speaker, I thank the Members who are showing their appreciation tonight.

Mr. Speaker, I want to share with you and our viewing public tonight on C-SPAN a little booklet, called The Status of Social Security and Medicare Programs: A Summary of the 1995 Annual Reports.

I want to tell you about this because I want to urge you, if you are a senior



citizen, if you are some day going to be a senior citizen or hope to be a senior citizen, or if you are just a citizen of the United States, this is essentially an annual report on Social Security and Medicare.

Unfortunately, Mr. Speaker, the debate on Medicare has become so utterly politicized that it is difficult for the public and for average Americans to cut through the political rhetoric and the demagoguery and the posturing that is going on to be able to find out what the truth is and what the facts are; and I commend this to you, to read it.

It is only 14 pages. It is short, it is clear, and it lays out very clearly exactly what the facts are. It is written by the Medicare trustees and the Social Security trustees and it includes 3 members of the President's Cabinet.

It is not a Democratic piece, it is not a Republican piece; it is a nonpartisan piece. It is very well written and lays out clearly what the programs are. It is informative in that it does not just talk about recommendations and problems and all of that, but it also tells you exactly what the tax bases are, how much money is raised, where the money goes, how much is in the trust funds of each one, how long we can expect them to last, and if there are problems that ought to be addressed.

I want to read just a couple of quotes from this, because I think it is very instructive. Again, call your Representative: the switchboard at the Capitol here is area code 202; the switchboard people do not like it when I do this, but it is very important that you do this.

#### POINT OF ORDER

Mr. FIELDS of Louisiana. Mr. Speaker, I have a point of order.

The SPEAKER pro tempore. The gentleman from Louisiana will state his point of order.

Mr. FIELDS of Louisiana. Mr. Speaker, is it proper for the Member to address the C-SPAN audience? Should not the Member address the Speaker of the House?

The SPEAKER pro tempore. The gentleman from Ohio is reminded to address his remarks to the Speaker.

Mr. HOKE. Mr. Speaker, I want to remind you, so that perhaps you could remind the public, that the switchboard number here at the Capitol is 202-224-3121; each citizen might call their Representative and ask for the summary of these annual reports.

I will say, and I am not suggesting that the gentleman from the other side of the aisle who made this point of order is a part of this, but I have got to tell you, the Democrats do not want you to read this report. They are trying to keep this report secret. They do not want you to see what is in this report.

Let me read a couple of things. It says,

The Board of Trustees are pleased to present the summary of the 1995 annual reports of the Social Security and Medicare Trust Funds. In particular, we encourage current and future beneficiaries to consider what these reports mean for them as individual citizens. Based on the trustees' best estimates, the reports show.

And I am going to cut to the part about Medicare.

... the Medicare Trust Fund which pays in-patient hospital expenses will be able to pay benefits for only 7 years and it is severely out of financial balance in the long range.

Then it has a lot of stuff on the summary of the reports and explains the analysis and how they go through this.

I am just going to go to the back where it has a message from the trustees. It says,

This is the fifth set of trust fund reports on which we have reported as Public Trustees.

During the past 5 years there has been a trend of deterioration in the long-range financial condition of the Social Security and Medicare programs and an acceleration in the projected dates of exhaustion in the related trust funds.

Then they go on to say the most critical issue relates to the Medicare program.

Both the Hospital Insurance Trust Fund and the Supplementary Medical Insurance Trust Fund show alarming financial results.

The Medicare program is clearly unsustainable in its present form. We had hoped for several years that comprehensive health care reform would include meaningful Medicare reforms. However, with the results of the last Congress, it is now clear that Medicare reforms need to be addressed urgently as a distinct legislative initiative.

The number is 202-224-3121. Mr. Speaker, I am asking that you advise the public that they can request this summary from their Representative and get a copy of it, because we have got to get out of the partisan rhetoric of this if we are going to get a conclusion.

I see that the gentlewoman from Washington wanted to make a comment.

Mrs. SMITH of Washington. I wanted to ask you a question, how I got the number, but you happened to say how I got the number. If they want to call our offices, though, and find out or if I want to tell someone, is it better to use that number or our own office number?

Mr. HOKE. If they have the office number, it is better to use the office number.

Mrs. SMITH of Washington. If not, what number?

Mr. HOKE. It's 202-224-3121.

Mrs. SMITH of Washington. Thank you. Listening to you, what really excites me about this is that we are not to the end; in fact, we are just at the beginning. I look at all that has been coming up, and the proposals are clearly that there are ways to fix this system and there are ways to make it better.

Mr. HOKE. I see that my time has expired. Maybe we could talk about that in the next special order.

#### TRIBUTE TO EAGLE SCOUT FROM MAINE

The SPEAKER pro tempore. Under a previous order of the House, the gentleman from Maine [Mr. LONGLEY] is recognized for 5 minutes.

Mr. LONGLEY. Mr. Speaker, one of the great privileges of being a Member of this body is the opportunity to address this Chamber and to address remarks to the Speaker. I would like to take advantage of this opportunity to call attention to an outstanding young man from my district who last Saturday was awarded the rank of Eagle Scout.

What is significant about this award is out of the thousands of scouts who do achieve the rank of Eagle Scout, this is the fourth son of Charles Gaspar of North Berwick who has achieved that rank; his son John, again, the fourth of four brothers.

He has many accomplishments. Most recently he ranked first in his high school class. He is an accomplished chess player and he aspires to be a physician. Mr. Speaker, I certainly would want to state for the RECORD my pride in having this young man as a resident of my district.

#### NATIONAL LOBSTER MONTH

Mr. Speaker, I would also like to address to the Chair, and knowing the Chair's great interest in fine cuisine, that my district is the home of the Maine lobster. The month of August is going to be Maine Lobster Month and I know that many Members who potentially may be taking vacations may have an interest in traveling to the rockbound coast of Maine to partake of this culinary delight.

We have over 6,500 licensed lobstermen in the State, over 400 dealers, and last year we produced nearly 40 million pounds of lobsters; almost 100 million dollars' worth of production that was distributed around the world.

Again, it is a great source of pride to me, Mr. Speaker, to represent the First District of the State of Maine and particularly the fishermen and the lobstermen in the State. Again, I compliment them on the great accomplishment of Maine Lobster Month in the month of August.

□ 2100

#### WE NEED TO LOOK AT MEDICARE MORE CLOSELY

The SPEAKER pro tempore (Mr. HAYWORTH). Under a previous order of the House, the gentlewoman from Washington [Mrs. SMITH] is recognized for 5 minutes.

Mrs. SMITH of Washington. Mr. Speaker, I think that we need to talk more about Medicare, because I am finally beginning to have hope. I took the report, the task force report home, that yellow book that scared me so much, and I flew 7 hours with it and I read through it and I read each section. Surely enough, the President's trustees were right. Financially, it is trouble.

I think what has been exciting to me as a newcomer here, a freshman in this particular year, is that solutions are coming quickly. What really is clear is that the people suggest and the ones coming up here say that we should be clearly looking at fraud and abuse, we should be looking at paperwork and how much there is, and that if we would do those two things, it would be a good beginning to fixing the system. We are going to protect the system.

I have not heard one person on either side of the aisle say we are not going to have Medicare. It confirmed what I have been saying, which is I am not willing to have any person that is on Medicare now, any person relying on this vital program for their life, to wake up one day and have it gone by default, because we do nothing to preserve the system, or by taking it away from people we have made a commitment to.

So what we are seeing now is people getting out the rhetoric. There are a few people that stand up here each day and harp that it is going to be gone, but they are the minority in both parties now. Most are saying, let's fix it, let's preserve it, let's make sure it is stronger and it is simpler.

The system is too tough for me, and my background is paperwork. So if my background is paperwork and I cannot figure out the paper, then how can someone else that is trying to manage after an illness? So that is just an exciting thing that I am seeing happening and a great hope for the system.

Mr. HOKE. Would the gentlewoman yield?

Mrs. SMITH of Washington. I would be glad to yield.

Mr. HOKE. Mr. Speaker, I think that it is very important that we remind ourselves and each other and the Speaker that one of the criteria that we will follow in this is that every single person who is currently on Medicare has an absolute guarantee from the Republican Conference in this House, the majority of this House, that those people, if they choose to stay on the Medicare Program the way that it is designed today, that is a choice that they will be absolutely guaranteed to have, and that nobody, at least on this side of the aisle, nobody is suggesting anything other than that.

Mrs. SMITH of Washington. Mr. Speaker, I think the exciting thing about that is that it is like a rainbow. We have had this system that everyone has known for nearly 10 years was

going to be in financial trouble, and they kind of just shoved it to the side. The system just sat there and got internally financially worse.

Now what we are hearing about is something nobody talked about because they knew there were problems in the system, and that is choice for senior citizens.

Mr. HOKE. I think you are right and I think that is what is exciting. The place that we can look first in terms of having hope for being able to solve this problem, other than the fact that I hope that as Americans, we all just have a general positive sense of our ability to meet any challenge, under any circumstance, and meet it positively and with vigor and with dignity and know that we are going to succeed.

One of the places that we can look, and probably the place we ought to look first generally, is in the private sector. I know, as you know, what has happened in the private sector. We have gone from over double digit inflationary rates in health care down to about 4 percent in the past couple of years. We are running at 10.5 percent in the public sector inflation per year, at 4 percent in the private sector. Clearly, if we simply use that as our model, right there, that is actually less than the increase that we have budgeted in Medicare over the next 7 years.

Mrs. SMITH of Washington. What the gentleman from Ohio is saying, is let's look at what worked in the general medical to bring down the inflation rate for Medicare. You know what they did? They streamlined paperwork, they got rid of fraud, they dealt with giving individuals choice.

We need to bring all of those things in. But we have to secure the confidence of those that are on it now and make sure everyone out there knows, or everyone knows, whether it is my grandmom or my mother-in-law, that they know that tomorrow they are going to still be taken care of. I hope the rhetoric goes down, because we have to fix this. With the rhetoric, that could stop us from fixing it.

#### THE VOTERS' BILL OF RIGHTS

The SPEAKER pro tempore. Under a previous order of the House, the gentleman from Michigan [Mr. HOEKSTRA] is recognized for 5 minutes.

Mr. HOEKSTRA. Mr. Speaker, I rise this evening to inform my colleagues that tomorrow I will be introducing a series of pieces of legislation that I think will get us back onto some of the agenda items that we need to address this fall. We have had a very successful year beginning early in the year with the Contract With America, moving on now through a process of going through 13 appropriations bills. But I believe the legislation that I am going to be introducing tomorrow, at least parts of

them, are going to require serious consideration this fall.

What I do is I call them the Voters' Bill of Rights. Because really, what we are doing with these pieces of legislation is we are empowering American citizens to help set the agenda in Washington, and to hold their Members more accountable for their actions in the House and in the Senate.

Specifically, the three pieces of legislation include three items, the first of which is the national voice on term limits. As many of you know, we had a vote on term limits earlier this year. We had a majority. We failed to get the required number because it was a constitution amendment.

I think it is now time to nationalize the debate, to have a national debate during the spring, the summer and the fall of 1996, and then we are going to have a unique experience if this legislation passes. We are going to have the opportunity to have every American citizen in this country to vote and express their preference on what they would like congress to do with term limits. That would happen in November of 1996. Then, as the Speaker of the House has committed, if Republicans are still in control of the House in 1997, January 1997, a vote on term limits would be the first vote that we will have on our legislative agenda in January 1997.

So what a beautiful process. We will have a national debate. We will have a national advisory referendum, and then we will have instructed Congress how to vote, and then in January 1997, we will have that vote on term limits, which I am sure will get us over the hump and move us to actually completing the work, or completing the work in Washington on term limits so that we can then move it to the States.

The second piece of legislation that I am going to be introducing tomorrow is the opportunity for citizens in their districts to recall Members of the House and Members of the Senate. Currently, if, during their term of office, the Member in the House or the Senate loses the trust or the confidence of the people of their district, there is no mechanism by which the Member or the citizens of that district can hold their Member accountable.

Recall is an extreme measure. The hurdles that we have in our legislation will make it very difficult to recall a Member of the House or of the Senate, but it provides that opportunity where the trust between the Member and the citizenry has been broken, for the citizens to go through a petitioning process and to call for the recall of their Member of the House or of the Senate.

It moves accountability and the ability to hold a Member accountable during a term of office back to the people, another element of our Voters' Bill of Rights.

The third element of our Voter Bill of Rights, and there are a couple of others, but the only other one that I want to highlight this evening, it is something that I saw for the first time 3 years ago, and I kind of chuckled the first time I saw it, but then I actually figured out how it worked.

What this calls for is FOR the States in the election process to list the individuals who have qualified through a petitioning process, or have qualified through a primary process. So it lists the names of the individuals who have qualified to be on the ballot in a November national election or House election or a Senate election. It has the names on there, and then it is going to add another interesting little category. It is going to add the category: None of the above. We call it NOTFA, None of The Above.

So often we hear our citizens saying, we are not really satisfied with the choices that we have. In this new process, they can vote for the individuals that are listed or they can vote for none of the above. If none of the above receives the majority of the votes, a new election will be held, and the individuals that were on the original ballot will not be eligible for this second election.

#### RESTORE CRIME PREVENTION DOLLARS IN H.R. 2067

The SPEAKER pro tempore. Under the Speaker's announced policy of May 12, 1995, the gentleman from Louisiana [Mr. FIELDS] is recognized for 30 minutes as the designee of the minority leader.

Mr. FIELDS of Louisiana. Mr. Speaker, today we are debating H.R. 2067, which was the legislation that we debated earlier today and the legislation we will resume debating on tomorrow. On tomorrow we will introduce an amendment to this piece of legislation to restore money for an interest that I have, an interest that I feel is very important to the American people, and that is the prevention dollars that were taken out of the bill and put in a block grant form and give the States the discretion to use money, either for prevention or for incarceration.

Mr. Speaker, I think one of the problems we have in this country, we fail to realize one of the problems with crime, is that we do not put money where I believe it needs to be, and that is in the area of prevention. If we just send block grant money to States and let them make the decision as to where they want to spend this money, we could very well end up with 90 percent or 100 percent of the dollars that we send to a particular State being used in incarceration, building more jails and prisons, and not dealing with the root of the problem. And in my opinion the root of the problem is in fact prevention.

The amendment that I introduced today, as a matter of fact, Mr. Speaker, and will debate on tomorrow will provide that 10 percent of the funding must be used for crime prevention, which would allocate about \$200 million of the total \$2 billion that is allocated in this appropriation to crime prevention. It just makes basic sense to me, Mr. Speaker, that we take 10 percent of the dollars and use it for crime prevention.

We passed the legislation last year to appropriate about \$30 billion to fight crime. We allocated X number of dollars to go toward building jails and prisons, and we also allocated X number of dollars that would go toward prevention, because we felt that was a balanced approach.

We felt that in order to fight the real crime problems in this country, you had to do it twofold, not only just build jails and prisons, but also have drug treatment, also have educational programs and recreational programs for youth all across the country.

In this bill, I am sad to say, this bill does not address that problem. Many argue that you can use the money for crime prevention or you can use the money for incarceration and enforcement. That is absolutely true. But the trend in this country is many States are using money only for locking people up.

Let me tell you why prevention makes sense, Mr. Speaker. Prevention makes sense because if you look at my own State, the State that I come from, the State of Louisiana, in the State of Louisiana we have the highest incarceration rate per capita in the whole country. We also have the highest high school dropout rate.

If you look at the people incarcerated in the State of Louisiana, 80 percent of the people who are behind jail cells in Louisiana are high school dropouts. So it does not take a rocket scientist to realize that education and incarceration does have some nexus. It makes more sense that if we spend \$60,000 to build a jail cell and then \$30,000 a year to maintain that jail cell, it just makes more sense to me that we put that kind of money in education, when we only spend about \$4,000 a year to educate a child.

So this amendment that I will introduce tomorrow, Mr. Speaker, will do just that. Up to \$2 billion that we will allocate for enforcement and crime and crime prevention, we will earmark 10 percent of that, which would be \$200 million, that will be designated for the sole purpose of crime prevention.

On another note as relates to crime prevention and education, I am going to introduce another bill, because I have gotten to the point that I am somewhat tired of us debating the issue of crime on the floor of the House of Representatives and never talking

about the real root of the problem, and the real root of the problem is prevention.

I am introducing legislation that would deal with one of the main roots of the problem, and that is education. It is ironic that we have spent time, days and nights debating the crime bill and appropriate billions upon billions of dollars to put people in jail, and by the same token, we spend very little time talking about how to provide education to our children.

There were discussions on this very floor to eliminate the Department of Education. How can anyone even entertain the thought of eliminating the Department of Education in this country? What message do we send to our children?

I am introducing a national education plan the latter part of this week on this House floor that will provide for a national educational trust fund. Those moneys will be used for three purposes and three purposes only, Mr. Speaker. One, moneys will be used to provide a book for every student for every subject. I think that is a commitment that we as Members of the Congress ought to make. There should not be a student who walks into a public school in America that does not have a book, the very basic requirements, a book for every subject.

Some may think that is very radical. But we spent \$30,000 to build a prison cell, but we will not spend \$10 to buy a kid a book and guarantee every kid in America who goes to a public school have a book for every subject that he or she engages in.

□ 2115

How do we expect teachers to teach and kids to learn if they do not have the proper tools: so I just think that is basic sense and basic logic for me.

The second part of this legislation I will introduce will deal with infrastructure. I am sick and tired of walking into schools all across this country and the schools are in worse conditions than in our jails. I have visited schools and jails, and, when I visited jails in Louisiana and in this country, the ceilings are never leaking, the air conditioners are always working, the infrastructure is absolutely gorgeous, but when you visit public schools in this country, unfortunately many times the ceilings are leaking. I mean the building is about to collapse. But yet we study, put down more and more money into jails and prisons and fail to make the investment in our children and in our schools.

And lastly this bill would provide for the funding of teachers' salaries. We take money and put—I think the national Government, the Federal Government, has an interest in what we pay teachers. You know we cannot any longer expect teachers to work and

raise a family for little or nothing. I mean teachers cannot buy bread and milk cheaper than anybody else. So I think we have to make that investment now.

Many say how are you going to fund this. I mean we are facing trillions of dollars of debt. And we have a deficit. I mean how are you going to fund it? It sounds very great to stand up on the floor of the House and talk about providing a book for every student and providing teacher's salaries as well as building new schools and improving infrastructure of the schools we presently have.

Well, there is a proliferation of gaming that is taking place all across this country. You know I think we ought to have a Federal tax on gaming, 5 percent, and that 5 percent ought to go to a national education trust fund, and those dollars ought to be used solely for the three purposes I enumerated on the House floor tonight, and it is amazing what we will do with education in this country if we can put those kind of dollars in education.

I see the gentlewoman from Texas is standing in the well, and I would be happy to yield to the gentlewoman.

Ms. JACKSON-LEE. Mr. Speaker, as I listened to the gentleman give us really an agenda, because someone would be listening and ask the question how do we pay for many of the things that I heard you express concern about, but the real question becomes how do we focus, what are our priorities, and you mentioned education taking some of the most devastating cuts, chapter 1, many of our rural and urban schools where children need an extra leg up or an opportunity.

Again I always emphasize it is not a handout, it is a hand up, but yet we are going almost to the bone on programs that provide special educational opportunities for our children. There is a lack of focus. The infrastructure where we find that our children go to schools with leaking roofs and windows that do not shut or those that shut tight and they cannot get any air.

Then we have a situation where we say to our seniors, and in fact I want to emphasize again, and I was on the floor of the House saying this before, it is not just our seniors that are impacted by Medicare and Medicaid. We want to do a \$270 billion cut, not because we have heard from the task force put together to assess the condition of Medicare, and they did indicate that Medicare needs to be reformed, but specifically they said it needs to be reformed in the context of a total health reform package, and they also mentioned that what needs most to be emphasized in Medicare reform is elimination of fraud and abuse. No one disagrees with that. But I do wonder about the \$270 billion cut that is now proposed by Republicans to give a tax cut to those mak-

ing over \$200,000 and then another proposal to voucher those individuals receiving Medicare benefits.

And so the question becomes focus because, if you eliminate and cause seniors to have to pay an increase, which they will, in the amount of the Medicare premium, the balance is going to come on the backs of those seniors, either that they will not be able to pay that increase and, therefore, their health will go down, their health maintenance program will go down, or they will choose between eating and health care.

But more importantly for those of us who think, well, it does not impact me, those are our parents who will have to come back into our homes or rely upon the meagerness of the income that you already have while you are trying to raise your children and send them to college on a cutback on student loans by the way, and then you have to face the concerns and the needs of your parents.

It is a question of focus, and I was looking, if the gentleman would yield just a little bit more, on what we do in terms of crime. We stood here today, and argued, and tried our best to bring some reason to the Department of Justice appropriations. That is also a question of focus. When we had already in the 103d Congress—my predecessors; I was not here—had already reconfirmed the value of having cops on the street, community policing, we had confirmed through the crime bill of last year that it is important to have preventive programs, late night parks that are used in the city of Houston, the DARE program, drug-free schools, very, very important measures to get to young people and say, "Be a part of our gang and not theirs."

What do we get? A slashing of that program so drastically, and, when we come back with a very measured, reasoned proposal to include the cops on the beat program, to include more preventive programs for our children, and also to include the violence against women prevention programs and support for those kinds of programs under the Violence Against Women Act, what happened? We reject it, or it was rejected by the majority.

And so I think that we have a problem with focus in this appropriating process, and we are not focused on the future, we are not focused on those who need the extra helping hand.

Mr. FIELDS of Louisiana. Mr. Speaker, I thank the gentlewoman for her comments, and she certainly makes some very strong points in both areas, first in terms of the seniors. I mean it is so important that we not forget about those people who have worked hard all of their lives, who have built this country, and their mothers and fathers, and their grandmothers and grandfathers, those people who built

this country, and who worked hard, who fought our wars, who served in our governments and who just did basic things, those people who worked in hospitals and those people who worked in schools, and to say to our seniors now that you are just not important anymore to me is absolutely asinine and unconscionable to say the least.

So, we have to have some consideration when we talk about this whole issue of Medicare because it is an important issue, and it will impact when you talk about billions of dollars in cuts.

You know you could call it what you want to call it. It is a cut, and it will impact a bunch of senior citizens in this country, and I am glad that the gentlewoman took the time to stand up in the well tonight to talk about the need to preserve programs such as that and the need to protect elderly people in her own State of Texas and all across this country. So I thank the gentlelady.

I yield to the gentlewoman for just a second.

Ms. JACKSON-LEE. One of the things that moved me most when I go home to the district would be those who would say, "Do not cut me off Medicare." It was not individuals who did not realize that we had to make sure Medicare survived into the 21st century. They were not being selfish, but they wrote letters or have written letters to my office asking are those of us who are going to be put off? Are those who will become eligible in the year 2000 not be able to secure the necessary health maintenance and health benefits necessary for what has been very positive in this country, which is old age, the ability for our citizens to live longer and healthier lives; is that something that we should give up when most nations look to this country in admiration that we can do that for our seniors?

And then let me just add to the focus question to include two other areas, and that is the question of homelessness. We had begun to make strides in the homeless area serving homeless persons. Again let me emphasize a hand up and not a handout. We had uniquely been able to focus on what we call transitional housing that allows people to get support services and survive. What do we do? Drastically cut transitional housing because there is not a focus, pitching one support need against another, and then they take it a step further and put in jeopardy the Ryan White treatment dollars.

Mr. Speaker, I recall when these moneys were first proposed for AIDS treatment that Houston was then 13th on the list. It may be 7th now in HIV cases, and so the Ryan White treatment dollars are a vital component of treating those with this deadly disease and, as well, carrying forth the message that we care, but most importantly, that we are in partnership with

local health entities that face and have the greater burden for HIV cases. Are we saying to them that we, the Federal Government, are throwing up our hands, we are no longer going to be partners in this very vital effort that we are making both in AIDS and in homeless? And those living with AIDS will now be impacted by not having dollars that may be helpful.

Mr. FIELDS of Louisiana. I thank the gentleman for her comments and, taking it a step further, in the VA-HUD appropriations they also cut off moneys for national service. I mean eliminate the President's program on national service. Now here was a program, or here is a program, that dealt with kids who were caught in the middle and parents who were caught in the middle. I mean parents who made a little bit too much money to qualify for Government assistance to send their kids to college, but did not make enough money to afford to send their kids to college on their own. So last year we came up with this innovative idea. We said we are going to have a national service program under the President's leadership, and it was a program that did not have an income criterion. If you want to volunteer your services and work your way through college or work your way even after college and pay off your student loan because of the high default rate we had among students who graduated, and even those who did not graduate from college, so this Congress came up with a unique idea to provide a national service program for kids, young students, who decided to go to college, and work their way through college and work with nonprofit organizations.

In this legislation, it totally wipes out that program, zero dollars, not phased down, but wiped it out. I mean 20,000 kids right now and today are benefiting from the national service program what will not be in effect in 1996 if this appropriation passes this House.

You know I mean what are we saying? On one hand we are telling seniors we are going to cut Medicare, on the other hand we are telling young people we are going to cut out drug-free schools in communities and national service programs. And then we tell them God knows if you have AIDS in America, then you are going to be cut out of public housing. I mean zero, not phased down. I mean zero.

I mean to zero these kinds of budget items to me is you have got to have a hard conscience or no conscience to make these—to come to these kinds of conclusions. I mean from the elderly to the youth, to those people who need assistance, the most—you know, people with AIDS—to tell them that they are no longer going to have this kind of public assistance as relates to housing—you know, what is wrong with A \$1 billion cut.

First of all, it is 9 percent, and you have more homeless people. We have

600,000 families in America right now today who are homeless. We are not fixing the problem. We are adding to the problem when we cut assisted housing programs and homeless programs to the degree that we are cutting them in this budget.

I mean homeless programs. This year we appropriated \$1.2 billion. We are going to cut about \$576 million. I mean next year we are going to appropriate \$576 million, which will provide a \$544 million cut in the homeless program, not to mention what we are going to do to the environment.

□ 2130

We are talking about how we need to preserve the air, water, and soil. But if we do not have an agency that has the wherewithal to do that, then we are failing. We cannot grow more land in America. It is the Federal Government's responsibility to preserve the air and preserve the water and preserve the soil.

That is our responsibility, in my opinion. If we do not do it, who will? Are we going to just depend on somebody from space to protect the air and environment that we live in?

We talk about deficit reduction. We have a deficit reduction as relates to the environment as well. There are a lot of cleanups that we must provide, a lot of cleaning up that we must engage in right here in this country.

In my own district, I have several Superfund sites. There needs to be an agency in Baton Rouge, LA, next to a community called Ethel and next to a community called Scotlandville. There is a polluted Superfund site that needs to be cleaned up. But will the EPA be able to do it? We appropriated \$7 million last year. Next year, they will appropriate only \$4 million, \$2.3 million cut, 32 percent.

We expect our kids to look at us and say yes, son, we are going to make sure when you go fishing 10 or 20 years from now you can fish in clean water. When you walk outside you can breathe clean air. When you decide to grow crops, you are going to be able to turn over clean soil. Yet we are failing to provide EPA the kind of mechanisms they need to protect these natural resources.

Ms. JACKSON-LEE. The gentleman from Louisiana does not know how right he is on the Environmental Protection Agency. I am as we speak dealing with a problem of lack of resources: An area in a community of 3,000 homes of individuals in my community, in the 18th Congressional District, Pleasantville, bedroom community, stalwart citizens, experienced in their nearby neighborhood, a very tragic, if you will, and disturbing fire of a warehouse that contained hazardous materials.

We have been trying to work for weeks now in order to get the resources put in by EPA that is so downsized already, to get into this area and do ad-

ditional testing. That is why I am so opposed and concerned about a \$2 million cut, because when neighborhoods that need to be secure, people who live in communities, have invested in their property, suffer this threat so close to their community, and then when we call upon the resources that need to be utilized for testing, to protect their lives but as well to make sure they are safe in their living conditions, we face this response of downsizing and no resources.

It is the same kind of response that you hear with the homelessness and that you hear with the question of the AIDS treatment, and the same kind of response that you may have to give now those 99.1 percent of Americans that have Medicare and Medicaid, that eventually you will have to say there is no more room at the inn.

The question that you have asked, I would like to answer, is that we do not have focus. We have taken away from the American people their dreams, their aspirations, and their hopes. I think once you do that you have turned away the responsibility of the Federal Government to capture hopes and dreams and aspirations of the American people. We have lost our focus.

Mr. FIELDS of Louisiana. Further in the environment portion of this legislation, as the gentleman knows, it also cuts money that deals with water treatment grants. Fiscal year 1995, we appropriated \$2.6 billion. This year, for 1996, we appropriate \$1.7 billion.

Now, there is some who probably do not appreciate, as I do, the need for these grants. I have several little small towns and villages in the district I represent that do not have water treatment plants and do not have the wherewithal, do not have the tax base to develop a water treatment plant.

I have citizens who live within the district that I represent who do not drink clean water everyday, not because they enjoy drinking water that is probably not safe. There are people who live in my district, I can give you a town: for example, the town of White Castle. I have an excellent mayor, Maurice Brown, who worked hard. We were just able to appropriate money to that town so they could improve their water situation. Before such time, we have citizens who were drinking water that had color in it. Some refused to drink it. Some just bought bottled water. Then they asked, Congressman FIELDS, I drink bottled water, but what do I do when I have to take a bath? Those kind of things. I do not think people really have a real appreciation of those kind of problems that really exist in rural America today.

To cut this kind of program to this degree will not allow this Congress to help small towns like White Castle. It will not allow this Congress to help little, small towns like the town of

Donaldsonville and other small towns in rural America. That makes sense. It is through no fault of their own.

I want to thank the gentlewoman from Texas for coming out tonight to discuss some of these budget cuts in these appropriations bills, because they are devastating, and they will have an effect on real people back home in all of our districts. It is something we need to be cognizant of.

Lastly, I just wanted to say tomorrow, when we debate the amendment on the Commerce appropriation, that we will put 10 percent, earmark 10 percent of the dollars to prevention.

I would hope that Members of this body will stand up and support that amendment, because we cannot fight the crime problem in this country by only dealing with jails and penal institutions. We are going to have to fight it from both angles. That is incarceration, law enforcement, and prevention. I think that this bill fails to provide that.

#### PRESENTING THE FACTS ABOUT MEDICARE

The SPEAKER pro tempore. Under the Speaker's announced policy of May 12, 1995, the gentleman from Kansas [Mr. TIAHRT] is recognized for 60 minutes as the designee of the majority leader.

Mr. TIAHRT. Mr. Speaker, I come to the floor this evening to present to you and to the American people the facts about Medicare. The course of the discussion I will take is well-traveled, but I do not think that there has ever been a more pressing issue facing our Nation than the crisis concerning Medicare. I want to lay out the facts tonight and discuss the very immediate steps which must be taken to preserve and to protect Medicare for everyone who plans to live longer than seven more years.

I am going to start with the bottom line tonight and work my way backward, back to the point which brings me to this podium late this evening. We must keep one singular, simple, and brutal clear point in our minds as we utter every word in the debate about Medicare: According to the Medicare trustees, the Medicare trust fund, which pays the hospital expenses for Medicare beneficiaries, part A, will be bankrupt by the year 2002.

I have with me tonight that report that was issued by the Medicare trustees. This report goes into detail as to why the Medicare trust fund is on a path to go bankrupt by 2002. Mr. Speaker, if someone was wanting to get a copy of this, they should call the congressional phone line, which is 202-224-3121. Mr. Speaker, that is 202-224-3121.

At that point, the trustees tell us, the system as we know it today will cease to exist. All of the accusations we have had and the political bickering and the semantics are pale when we

compare the simple fact that the Medicare trust fund is going bankrupt, when we lay that fact on the table.

Medicare is going broke and will not survive another generation unless we act to save it today. In a sense, Mr. Speaker, I am speaking hypothetically about this situation tonight, because, as the Republican Party, we are going to do everything we possibly and physically can to prevent that from happening. We intend to provide quality, affordable, easily accessible health care for all of our seniors.

Nobody likes to hear the word bankrupt. I guess if you spend enough time in Congress or if you work for the Government long enough it might not mean too much, but as someone who spent a lot of time in the private sector, in the real world, I have a healthy respect for the word. The concept is clear: Everyone out there tonight understands that when your expenditures consistently and substantially exceed your revenues or your reserves, you will go broke.

I think this chart that I have very clearly says it all. The part A trust fund is going to be empty by the year 2002. It starts here with the current trust fund that we have in 1995 of about \$150 billion. You can see that as time goes on, as we achieve the next 7 years, by 2000 the line here is marked zero, and the expenditure line, the trust fund, cross at 2002. That is an indication that the trust fund is at that point broke. It has no more money in it. You can see after that it runs a deficit for the next few years.

This situation though goes way beyond the Medicare system. It affects our entire budget once we start running a deficit.

I firmly believe that this Congress was elected in large part to balance the budget. The President has finally admitted that if we can balance the budget, it will actually be good for our economy. He does have a plan, but according to the Congressional Budget Office it will not work. He is admitting to having a problem. I think that is a significant start, and we welcome him aboard in the fight to balance the budget.

But the fact is, without significant reform to Medicare, it is almost impossible to balance the budget. As a Congress and a nation, we must reform Medicare if we hope to preserve and protect the system, and we must balance the budget.

The crisis to Medicare confronts us to some degree because of an aging population and an ever-expanding measure to provide better health care longer, but there is also an inherent deficiency in the current system which has led to explosive growth in Medicare, over 10 percent annually for the last 11 years. This, Mr. Speaker, is in part what we can control and where the solutions must be found.

Egregious cases of fraud, abuse, and waste do exist, but we will attack them. We will not completely solve the problem, and I guess technically Medicare could continue to operate as it does today. We would just simply require the next generation to pay a payroll tax rate of 19 percent by the year 2050.

But that is not acceptable. What we need to do is simplify, cut out the red tape, open more opportunities to our recipients as we do in the private sector. We can and must do it.

I just cannot go home at night and look at my three young children, knowing that even though none of them are out of high school yet, our generation, my generation, is planning how we are going to spend their money. And the key to protecting and preserving Medicare is to control the rate at which the program increases.

The Republican proposal is to allow Medicare to increase. Let me repeat that. Our proposal is to allow Medicare to increase, simply at a slower rate than the current double digits we have. But this plan provides for an increase per person of over \$1,900 by the year 2002. This is a 40-percent beneficiary increase.

This chart that is entitled "Medicare Spending Per Recipient in the Republican Budget" indicates the increase. In 1995, the average expenditure per person is \$4,860. That is going to increase to \$6,783 per person by 2002. We have heard a lot about the cuts going to Medicare, but it is actually an increase. One has to think that those who keep talking about cuts would be losing credibility when there is an acknowledged increase in spending to Medicare. But this rate of increase is both sufficient to maintain the integrity of the Medicare program for the current and future beneficiaries, and to ensure its long-term solvency and survival.

Mr. Speaker, I came to the floor tonight to engage the American public with these facts. I believe this effort to save the Medicare system is so imperative, because it goes much deeper than one specific program designed to provide health care assistance to the older Americans. I believe it is going to serve as a test of our resolve. We must come together, we must overcome contrived generational lines, we must overcome the temptation of the liberals to use class warfare, age warfare, because we must ensure that as Americans, the America we pass along to the next generation, our children and our grandchildren, is a little bit better because of our efforts, that government can be the highest and best. This idea does not seem to be embraced much anymore. It seems that each generation has grown increasingly more pessimistic about their future. I am concerned about this because this is not the vision of America which I want to pass on to our next

generation. I think that if we can succeed today in this endeavor, we will not only save the Medicare system but resurrect some of the much needed optimism that our Nation has lost.

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There is a great need to preserve hope for the future. Just last July 4, I received news that I have a new nephew. His name is Kenan Tiaht. He was born July 4, Independence Day, 1995. He represents hope for the future. I have three children myself, Jessica, who is 14; John, who is 10; and Luke, who is 7, and they are my hope for the future and why I am involved in Congress. We must give them the tools that they need to start on a hopeful optimistic career and it starts today with our efforts to balance the budget so we can preserve the Medicare system and protect it.

For our hopes to balance the budget we must be able to eliminate the unnecessary bureaucracy, and tonight I have with me several people who are going to be discussing how we are going to eliminate that unneeded bureaucracy and save the future for our children by balancing the budget. Tonight, speaking about elimination of the Department of Commerce, I have the gentlelady from Idaho [Ms. CHENOWETH], and I would like to yield to her for what time as she may consume to discuss the elimination of the Department of Commerce.

Ms. CHENOWETH. I thank the gentleman from Kansas for yielding me the time.

Mr. Speaker, it is exciting to hear the gentleman from Kansas speak about the reduction of the size of Federal Government with more than just words in round pear-shaped tones. To lead into the fact that we are truly a Congress committed to reducing the size of the Federal Government is truly exciting in this revolutionary and historic time in the U.S. Congress.

Mr. Speaker, after several months of careful study, our task force on the elimination of the Department of Commerce has put forward a well thought-out, responsible program for dismantling the Department of Commerce bureaucracy.

The plan consolidates the duplicative programs, eliminates the unnecessary programs, streamlines the beneficial programs, and privatizes those programs better performed by the private sector.

The plan has bi-partisan support and is also endorsed by many former Commerce Department officials. In addition, the elimination of the Department of Commerce was accepted into both the House and Senate budget resolutions earlier this year.

First, I would like to dispel the myth that the Department of Commerce is the advocate for American business in the federal government.

Business leaders of both small and large companies would be far better served if federal efforts were focused on cutting taxes, enacting regulatory and tort reforms, and more importantly, achieving a balanced budget.

Incentives such as these translate into real sustainable economic growth by way of lower interest rates, a boost in capital investment, and the generation of more jobs. Yet the "voice for business," the Commerce Department, has been notably silent on these issues.

Instead of being the advocate for business, Commerce is a federal department that is involved in everything from managing fish farms in Arkansas to providing federal grants to build replicas of the Pyramids and the Great Wall of China in Indiana.

Commerce officials have been forced to defend the entire Department based on the limited successes of its trade functions, and in doing so completely miss the mark. Only 5 percent of Commerce's budget is devoted to trade promotion, a responsibility shared with over 19 other federal agencies. In fact, Commerce does not even take the lead in U.S. trade programs.

We are not, however, disputing the importance of many of the trade functions currently performed by the Commerce Department. We understand and agree that we must aggressively pursue foreign markets and provide inroads for American businesses.

My colleague, Congressman Mica, has proposed the reorganization of the federal government's trade functions into one coordinated Office of Trade. This will begin to consolidate a very fragmented trade process in our government.

There is no need for the Bureau of the Census to be in a Department of Commerce. This agency would be better included in the Treasury Department, as our proposal suggests, or as the foundation for an independent central statistical agency as others suggest.

The Patent and Trademark Office is another agency that bears little relationship to the other programs in Commerce, and because it is already a self-funding program, it pays a 25 percent stipend just to be in the Department of Commerce. This Office could be transferred to the Justice Department, where most legal issues of the federal government are addressed, or it could be made a government corporation as Chairman Moorhead of the Judiciary Intellectual Property Subcommittee has suggested.

The technology programs of the Commerce Department amount to little more than "corporate welfare" as Labor Secretary Robert Reich has suggested. A prime example of this corporate welfare is the Advanced Technology Program, which provides million dollar grants to some of the nation's industry giants.

The Department's own Inspector General notes the agency has evolved into "a loose collection of more than 100 programs." The General Accounting Office goes further, reporting that Commerce "faces the most complex web of divided authorities \* \* \*" sharing its "missions with at least 71 federal departments, agencies, and offices."

In fact, of these more than 100 programs, we found that all but three are duplicated by other government agencies or the private sector.

Former Commerce Secretary Robert Mosbacher has called his former Department a "hall closet where you throw everything you don't know what to do with."

Over half of the Department's budget is consumed by the National Oceanic and Atmospheric Administration, an agency that has nothing to do with commerce. The functions of this agency would find a much better home at the Department of Interior.

Commerce's claim that it has been a "proven business ally at the Cabinet table" holds little weight in the eyes of America's business community.

In fact, a June 5 Business Week poll of senior business executives illustrated support for eliminating the Department of Commerce by a two to one margin.

Several leading business journals, including the Wall Street Journal and the Journal of Commerce, have carried stories reporting on the lack of business support for the Department.

Mr. Speaker, regarding the majority of the Commerce Department's activities, what Department officials call synergy, others simply call confusion.

From the Census Bureau to the Travel and Tourism Administration, it makes no sense for these diverse and disjointed functions to be huddled together in one Department of Commerce.

The wholesale approach in defending the status quo at the Department, lumping the good with the bad, the efficient with the wasteful, is symptomatic of how we got into our deficit mess in the first place. We need to take a new look at how we do business at the Department of Commerce, not only to improve on the beneficial programs, but to save taxpayers' hard earned dollars.

The Department of Commerce Dismantling Act provides a blueprint for the orderly termination of this bureaucracy, eliminating the waste and duplication, saving the American taxpayers almost \$8 billion over five years. This is one step we can and must take to create a more efficient and effective Federal Government.

Mr. Speaker, for the RECORD I include the articles referred to earlier.

[From Business Week, June 5, 1995]

A BALANCED BUDGET OR BUST

American business has spoken: Balance the federal budget, even if it means giving up

corporate subsidies. That's the message in a new Business Week/Harris Executive Poll of 408 senior executives. A decisive 57% of corporate leaders said balancing the budget was a "top priority" that will only happen by setting a strict deadline. Only 23% felt such a step might harm the economy.

Given a choice between balancing the government's books or slashing taxes, 79% of executives opted for budget balance. Yet few thought it would actually happen. Asked if Uncle Sam's ledgers would be balanced by 2002, 86% said no.

#### FULL STEAM AHEAD

Republicans and Democrats are arguing over how to balance the federal budget. Which of the following statements comes closest to your point of view?

	Percent
a. Balancing the budget is a top priority that will only happen by setting a strict deadline .....	57
b. Balancing the budget is a worthwhile goal, but drastic cuts in federal spending could jeopardize the economy .....	23
c. The most important goal should not be balancing the budget, but rather setting different spending priorities .....	20
d. Not sure/don't know .....	0

#### SAYING YES TO SACRIFICE

Some Republicans say that the drive to balance the budget by 2002 will require most, if not all, business subsidies to be eliminated. Considering your specific industry, are you willing to forgo special tax incentives or spending programs for the sake of budgetary discipline, or not?<sup>1</sup>

	Percent
a. Willing to forgo tax incentives .....	57
b. Willing to forgo spending programs .....	5
c. Not willing to forgo anything .....	10
d. Depends on the circumstances .....	7
e. Not sure/don't know .....	6

<sup>1</sup> Respondents could pick more than one answer.

#### NO SACRED COWS

I'm going to read you a list of business subsidies or incentives that might be eliminated in order to balance the budget. Should each of the following be eliminated or not in order to help balance the federal budget?

	(In percent)	Should	Should not	Not sure/don't know
1. Farm subsidies .....	83	13	4	
2. Incentives for energy development and efficiency .....	65	27	5	
3. Federal loan guarantees .....	65	29	6	
4. Export-promotion programs .....	59	34	7	
5. Research and development support for emerging high-tech industries .....	51	45	4	
6. Small-business grants and loans .....	49	47	4	

#### AXING AGENCIES

Supporters of a balanced budget are proposing to eliminate some federal agencies. Do you oppose eliminating:

	(In percent)	Favor	Oppose	Not sure/don't know
1. Energy Dept .....	71	24	5	
2. Housing & Urban Development Dept .....	69	27	4	
3. Commerce Dept .....	63	33	4	
4. Education Dept .....	52	46	2	

#### READ OUR LIPS

Separately, GOP spending proposals would balance the budget by relying exclusively on

spending reductions. As a last resort, would you favor or oppose modest tax increases to help balance the budget by 2002?

	Percent
a. Favor modest tax increases .....	39
b. Oppose modest tax increases .....	57
c. Not sure/don't know .....	4

#### TOP OF THE AGENDA

Which of these issues is THE most important to American business

	Percent
1. Balancing the federal budget .....	31
2. Improving the U.S. educational system .....	28
3. Helping to make U.S. companies more competitive globally .....	17
4. Cutting taxes .....	9
5. Fighting crime and drugs .....	6
6. Reforming the welfare system .....	5
7. Providing guaranteed health care for all Americans .....	1
8. Reforming campaign finance laws .....	0
9. Not sure/don't know .....	3

#### NO TIME FOR TAX CUTS

Which do you think is more important—balancing the federal budget or cutting taxes for business and individuals?

	Percent
a. Balancing the federal budget .....	79
b. Cutting taxes for business and individuals .....	19
c. Not sure/don't know .....	2

#### YE OF LITTLE FAITH

All in all, do you think the federal budget will be balanced by 2002 or not?

	Percent
a. Will be balanced .....	11
b. Will not be balanced .....	86
c. Not sure/don't know .....	3

[From the Journal of Commerce, June 27, 1995]

COMMERCE DEPARTMENT SEEN LESS VITAL THAN DEFICIT CUT—BUSINESS SUPPORT WANES FOR AGENCY

(By Richard Lawrence)

WASHINGTON.—The Commerce Department, struggling against its abolition by Congress, is mustering little business support.

Although Commerce is the business community's most vocal supporter in the administration, most business executives say budget deficit reduction is more important than retaining an advocate in the Cabinet.

However, there is growing support that Commerce's duties, especially regarding international trade, be distilled into a new Cabinet-level trade agency.

House and Senate leaders agreed last week to a budget resolution to eliminate the department by fiscal 1999, although some of its functions, such as the Census Bureau, Patent Office, Weather Bureau and Import and Export Administrations would be transferred to other agencies or made independent.

The resolution, however, is not building, and senior Commerce officials maintain that "at the end of the day" the Commerce Department will prevail.

"I'm optimistic," said Jim Desler, a Commerce Department spokesman, "that the department's essential functions will remain intact, although there may be some (funding) cuts." Business support for Commerce is gaining momentum, he said, and will likely become more visible as the congressional proposals are more closely analyzed.

The department's fate will be up to a number of congressional authorizing and appropriations committees, though the president could have the final say. An early tip as to how Congress may proceed may come Wednesday when a House Appropriations

subcommittee takes up Commerce's fiscal 1996 funding.

To survive, Commerce officials acknowledge, the department probably needs solid support from business groups, in particular small and medium-sized firms. But that has not yet come.

A spokesman for the National Federation of Independent Business Inc., which represents more than 600,000 small businesses, finds among federation members little support for keeping the Commerce Department. It is more important, they feel, to cut the federal deficit than save Commerce, he said.

The U.S. Chamber of Commerce reports its members feel the same. The key, says Willard Workman, the chamber's vice president-international, is that lower budget deficits translate into lower interest rates and higher profit. Commerce's budget fund about \$4.6 billion a year.

"I've received only four phone calls from member companies asking that we lead the effort to save the department," Mr. Workman said. The chamber has more than 200,000 members.

But, he added, the chamber is open to proposals to consolidate the administration's trade functions, in particular the export controls bureau and the import administration, which investigates unfairly priced imports. Those functions must be retained, he said.

Others are more directly suggesting a possible new trade agency. The National Association of Manufacturers, in a letter to a House Appropriations subcommittee, argues that "some elements of Commerce's trade and export functions should remain together under the leadership of a Cabinet-rank official."

A similar call came from the Emergency Committee for American Trade, which represents about 60 U.S. based multinational firms. U.S. business, like labor and agriculture, must have Cabinet-level representation, said Robert McNeill, the group's executive vice chairman.

Business spokesmen and the Commerce Department clearly share one view: strong opposition to a House Republican bill to scatter Commerce's trade functions to different agencies.

Meanwhile, support to be growing in Congress, although proposals differ over how this would be done.

Sen. Christopher Bond, R-Mo., promises to push for a consolidated, Cabinet-level trade agency once a bill to dismantle Commerce reaches the Senate floor. Senate Majority Leader Robert Dole, R-Kan., is reported considering the idea of a trade agency, but one below Cabinet-level status.

In the House, Rep. John Mica, R-Fla., is about to introduce a trade agency bill, which unlike Sen. Bond's proposal, includes the U.S. Trade Representative's office.

By mid-July, Sen. William Roth, R-Del., the Governmental Affairs Committee chairman who has long proposed a department of international trade, will hold hearings to explore these and other views. And House Speaker Newt Gingrich, R-GA., has said he favors a congressional task force to examine how best to organize the government's trade-related activities.

It probably will take a year or two, perhaps longer, to sort out the Commerce Department's future and more specifically how the government's trade activities should be organized, business spokesmen estimated.



[From the Wall Street Journal, May 11, 1995]  
ORPHAN AGENCY—A LITTLE OF EVERYTHING IS DONE AT DEPARTMENT OF COMMERCE TODAY—VAGUE MISSION IS ONE REASON IT MAKES GOP HIT LIST; BUSINESS SHEDS FEW TEARS

(By Helene Cooper)

STEPHENS PASSAGE, ALASKA.—The officers aboard the U.S. ship Rainier are smartly dressed, in khaki maritime workwear. In the captain's quarters, polished wood gleams brightly. At the helm, Lt. Commander Art Francis guides the vessel as it surveys the clear waters of southeast Alaska. "I love this job," he says.

At the National Marine Fisheries Service in Seattle, meanwhile, government scientists work to determine the migration and breeding habits of the dwindling stock of Pacific salmon.

Nearby, workers from the Hazardous Materials Response and Assessment Division await the phone call that alerts them that there has been an oil spill—anywhere in the world. Then they whisk off to help in the cleanup.

These federal employees aren't from the Navy, the Fish and Wildlife Service or the Environmental Protection Agency, as their job descriptions might indicate. They work for the Commerce Department.

The Commerce Department? The tentacles of this cabinet department, marked for elimination by the Republican-controlled Congress, spread across the country and into the ocean. The Rainier, in fact, is but one ship in a fleet of 25 Commerce Department vessels commanded by three admirals.

With a loosely defined mandate to aid U.S. businesses, the department, with 37,000 employees and a \$4.2 billion budget, is a hodgepodge of bureaucratic functions, some overlapping with other agencies. It is currently involved in tasks ranging from trade talks with Japan on cars to scientific research on the zebra mussel. Commerce, its critics say, is the very symbol of bureaucracy run amok.

Given the millions in business subsidies and technology awards that Commerce has doled out to U.S. businesses, one might expect its corporate beneficiaries to be leaping to the department's side as the budget-cutters approach. Not so.

Consider the congressional testimony of Eastman Kodak Co.'s Michael Morley, a human-resources executive whose boss accompanied Commerce Secretary Ron Brown on a trip to China to try to nail down some contracts. At a House Budget Committee hearing on how to streamline government, Mr. Morley noted that Kodak planned to "sell, discontinue or close those businesses and functions that were not germane to our vision" and added: "For the federal government, an example might be closing the cabinet agencies of the departments of Commerce or Energy."

#### DEFINING THE MISSION

Robert Mosbacher, Commerce secretary in the Bush administration, is harsher still. He calls his former cabinet office "nothing more than a hall closet where you throw in everything that you don't know what to do with."

With the party of business now in control, these should be salad days for Commerce in the Congress. Instead, Republicans are talking about either a gradual death (in the Senate budget plan) or summary execution (the House's plan) for the department of business. Part of the problem is that no one can quite figure out what business, exactly, the Commerce Department should be in. Even top officials of the agency have a hard time describing.

"We are at the intersection of a variety of significant policy areas that spur economic growth," says Jonathan Sallet, Commerce's policy director. Commerce, he says, "is about combining them into effective parts of economic strategy. The strength of this department is in the fact that we make that connection."

#### SOME GOODIES

Commerce does offer some goodies that business likes, such as \$400 million-plus in annual awards for research in electronics and materials. But corporate lobbyists say these don't compare in importance with the feast of legislation they would like from the GOP Congress: tort reform, regulatory relief, a capital-gains tax cut and a scaling back of environmental restrictions. And even some Clinton administration allies appear hard-pressed to defend this bureaucracy. Asked if Commerce should get the *ex. C.* Fred Bergsten, director of the Institute for International Economics, replies: "I don't think much would be lost."

Adding to the department's woes is the battering that Secretary Brown has taken on questions about his private dealings. While Mr. Brown has received extensive media attention and praise for his work at the department, he is hobbled by a Justice Department investigation into how he made \$400,000 from the sale of his assets in an unsuccessful company in which he invested no money and little time.

There is no question that some useful work gets done at Commerce, particularly in the National Weather Service. At the National Oceanic and Atmospheric Administration, the Commerce arm that runs those ships (and that takes up almost 50% of the departmental budget), scientists do research aimed at averting oil spills. Map making that goes on aboard the Rainier is crucial to making sure tankers don't run aground.

But Commerce officials have a hard time explaining why some of these important functions belong in the department, and why others shouldn't be privatized. For example, some of the oceanic research—into zebra mussels, shark feeding and disposal of crab wastes—could be handled by industries that care about such things.

They are also often at a loss to explain how the department has grown so big. Mr. Mosbacher's hall-closet analogy isn't far off the mark. Departments and agencies that didn't fit in other cabinet offices were, over the years, simply tacked onto Commerce. This haphazard growth is typical of the federal bureaucracy. So too is the inertia and turf protection that may make it hard to do away with the department.

#### LIFE AT HAZMAT

Take a look at the Hazardous Materials Response and Assessment Division, often called Hazmat. A Commerce arm based in Seattle, Hazmat has branches in all the major coastal cities. It employs some 100 biologists, chemists, oceanographers, geomorphologists (geologists who work on beaches) and geologists who "dash off to oil spills around the world," says David Kennedy, Hazmat's chief.

Mr. Kennedy explains the mission: "We're a liaison and technical support to the Coast Guard for oil spills and hazardous-material spills," he says. "We're involved in how to clean up the mess. . . . How clean is clean?"

If these duties sound similar to the EPA's; that's because they are. Hazmat scientists routinely work with EPA people. Critics say the agencies could probably be merged, and overlapping jobs cut.

No, Mr. Kennedy says, Hazmat is different. EPA's mandate is to focus on human environmental dangers, he says, while Hazmat focuses on spills that affect shipping and commerce. So he says Hazmat needs to remain separate.

Leonard Smith, a regional director of Commerce's Economic Development Agency, makes a similar argument in explaining why the Commerce Department is helping create a university in Monterey, Calif. When the nearby Fort Ord military base closed, officials were frightened for the local economy. "Who's left to come in and help the community?" Mr. Smith asks.

Who else but Commerce? So last year, the department put \$15 million into turning the base into California State University at Monterey, whose doors will open to 1,000 students in September.

But if California needs another campus for its sprawling university system, shouldn't whatever federal help was needed have come from the Department of Education? No, says Mr. Smith. "We're not just creating universities, we're creating jobs."

At Commerce, job creation is taken especially seriously when the jobs belong to the department itself. Officials are upset over a proposal from Sen. Jesse Helms of North Carolina to return the department's U.S. and Foreign Commercial Service to the rival State Department where it rested before 1980. ("They're still stuck in the Cold War over there," a senior Commerce official says.)

#### EXPORTS AND JOBS

So Commerce has mounted a public-relations offensive. Reporters were brought in recently to tour the office's new export-advocacy center, where U.S. companies trying to enter complicated foreign markets can seek aid. Security is tight: special codes and complex locks restrict entry. One mission is to track the 100 biggest business deals around the globe for which American companies are competing. In an almost eerie display, a bank of empty computers each display the same message in purple letters against a turquoise background: "Exports—Jobs."

This is the Commerce Department's byword, and it has fueled a drive by Secretary Brown to open foreign markets. Mr. Brown has led corporate delegations to China, Brazil and Africa, helping to forge new contracts valued at \$25 billion and creating 450,000 new jobs, according to department estimates. Past Commerce chiefs, including Mr. Mosbacher, also stumped on foreign territories for U.S. companies, but none with the zeal or effectiveness of Mr. Brown.

But even in this high-profile line of work, Commerce comes under fire. "There's no economics in the argument" that export promotion creates jobs, contends Robert Shapiro, a Clinton political ally and vice president of the Progressive Policy Institute, a Democratic Party think tank. "These export subsidies certainly don't reduce the trade deficit. All you can do with [them] is increase jobs for companies with the clout to get the subsidy. But that's at the expense of industries that don't have that clout. You're just shifting things around."

#### FAINT PRAISE

Given the energy Commerce spends seeking foreign business, one might think U.S. companies would be rushing to defend at least these Commerce initiatives from the Republicans' ax. Most aren't.

"A few of their programs I see value in," says a lobbyist for a large U.S. company that has received several Commerce research subsidies. "But the entire department, with what it costs to run it? It's hard to justify."

For his part, Mr. Brown calls the proposals to eliminate his department "the height of nonsense." He argues that rather than make it smaller Congress should make it bigger, a sentiment that President Clinton apparently shares. Commerce's fiscal 1995 budget is 28% higher than that for fiscal 1993.

"I think you can make a reasonable argument that money spent in Commerce gets more bang for the buck than anywhere else in government," Mr. Brown says. "It attracts private investment. It creates jobs for the American people."

And Commerce may be saved by the very thing that makes some people want to kill it: its long reach. If Commerce is axed, asks one of its midlevel bureaucrats, "Who would forecast the weather? Who would do the census? Who would operate the Appalachian Regional Commission? Who would take CEOs to China?"

In fact, the Republican proposals to drop the department would save some of its key functions, such as weather forecasting, by putting them elsewhere. There are those who say talk of eliminating Commerce is a deceptive attempt by politicians who want to give the appearance that they are cutting government waste. "You have to distinguish between programs that actually abolish Commerce and programs that simply eliminate the letterhead," Mr. Shapiro says.

Consider the antics of Republican Sen. Spencer Abraham, head of a Senate panel to consider eliminating Commerce. "There is simply too much waste and duplication," he said last month. "Our goal is to make government more efficient and less expensive."

But the senator is from Michigan, where zebra mussels are clogging sewage pipes. Three days later he voted to restore \$2 million for zebra-mussel research in the Commerce Department.

Mr. TIAHRT. Mr. Speaker, I appreciate the gentleness from Idaho talking about a very necessary method of removing the unneeded bureaucracy, and we have on the floor with me tonight the author of the bill to dismantle the Department of Commerce, and I think that we should commend the gentleman from Michigan [Mr. CHRYSLER] for his efforts to eliminate the bureaucracy because it is really an historic event.

I was not surprised in my own efforts to head up a task force to eliminate the Department of Energy when I went to the Government Accounting Office, or the GAO, and I asked them how do you dismantle a cabinet level agency, and they said, well, we simply do not know. We have only been in the business of creating Government agencies and we have never dismantled one before.

So what the gentleman from Michigan [Mr. CHRYSLER] is doing now is he is going through the process of finding the best way to eliminate the Department of Commerce, and it is quite a task, an historical task, and one that has never been taken on.

There are some questions I personally have about how it is going to occur and I wanted to engage in a colloquy with the gentleman from Michigan [Mr. CHRYSLER] to see if we cannot bring out into the open, Mr. Speaker, some of these issues.

I think one of the most fair questions is, is the gentleman's proposal simply a reshuffling of boxes on an organizational chart, or is it a serious transformation of a Government bureaucracy? Would it not be better to cut the fat out of the current Commerce Department, or is it better to eliminate the entire department?

Mr. CHRYSLER. Well, I thank the gentleman from Kansas, and that is a very good question.

Mr. Speaker, certainly as we looked at dismantling the Department of Commerce, it was a product of over 6 months of study by a task force of several Members of Congress: MARK SANFORD, MARK NEUMANN, from Wisconsin, HELEN CHENOWETH, of course, who we just heard from, and SUE KELLY, from New York; JACK METCALF from Washington, WES COOLEY, and JIM TALENT, our token sophomore on this group, as well as former Commerce Department officials and outside policy experts.

We looked at each of the over 100 programs within the Department of Commerce and asked three simple questions: No. 1, is this program necessary and should Government be involved in it, and is it worth borrowing the money to pay for it only to have our children pay it back? Is it necessary? Does the Federal Government need to be involved, or is this something better left to States, communities and/or individuals? If the Federal Government does need to be involved, are we currently doing the job in the most effective and efficient manner?

I think my colleague from Idaho, HELEN CHENOWETH, could tell me a couple of real life examples she has experienced out in the great northwest.

Mrs. CHENOWETH. I thank the gentleman for the time.

Mr. Speaker, we have some very interesting experiences that we are going through in the great northwest and it involves the Endangered Species Act. By listing a species known as the sockeye salmon or the spring or fall Chinook salmon, because this is a species that crosses State lines in its trek back to its spawning grounds or spawning habitat in our streams in Idaho, it naturally falls under the Department of Commerce. Therefore, the National Marine Fisheries Service is competing with the Fish and Wildlife Service, Department of the Interior, as well as various other agencies, including the U.S. Army Corps of Engineers to manage this particular species.

In trying to manage the species to get it to the point where it is no longer endangered, they have proposed doing away with numerous dams, but, most importantly, because water is such a precious resource in the arid west, we find an agency under NOAA, under Department of Commerce, literally taking command and control of our water in the Western States.

Due to the planning of our Founding Fathers and the people who forged the

western States and forged the living and the communities and built the irrigation systems and the reservoir systems, very well thought out systems, we were able to turn the west into a productive community. Today we have an agency, the National Marine Fisheries Service, who is calling on our water in our storage reservoirs over State law. They are ignoring State law, absolutely ignoring State law, and calling on the State water for a very questionable program called flow augmentation.

□ 2200

By calling on the water in the storage reservoir, this means the irrigators cannot apply the water to the land for their crops. Truly, because of the action of an agency under Commerce, it is exacerbating a problem that we commonly call the war on the West, because without water in the West, we are not able to grow our crops. We are not able to produce electricity.

For one agency, under the direction of the White House, to be able to command the U.S. Army Corps of Engineers to open the headgates and drain the reservoirs for a questionable program for the salmon is truly a taking of States' and individuals' property rights.

Mr. CHRYSLER, and Mr. Speaker, it is because, under Commerce, we saw an agency totally overreaching.

In addition to this, we have seen this agency, working with the Forest Service or the Bureau of Land Management, totally lock up our ability to work our resources in the West because no decisions are made. Our States are suffering under continual threats of lawsuits, and many of them are brought about by friendly lawsuits that are supported by the agencies.

So we look forward to having some common sense streamlining of agency responsibilities in the Northwest by doing away with the Department of Commerce and eliminating these kinds of responsibilities under the National Marine Fisheries Service, that has created so much confusion in the Northwest.

Mr. Speaker, I appreciate the time.

Mr. CHRYSLER. Mr. Speaker, certainly we can see that the Department of Commerce has been much more regulatory in nature than any kind of a supporter for the business community, and when measured against the criteria, the Commerce programs rarely live up to their expectations.

If we found a program that was duplicative in the Department of Commerce, we consolidated it. If a program was better performed by the private sector, then we privatized it. If it was beneficial, we streamlined it. If we found a program was unnecessary, then we eliminated it.

Mr. TIAHRT. I believe that you have laid out a good case for the elimination

of the Department of Commerce, but does your proposal allow for an orderly termination? This is something, as we said earlier, that has never been done. Is it an orderly termination of this department that have you in mind?

Mr. CHRYSLER. What we are doing with this program, and of course we will vote tomorrow on the Commerce, Justice appropriations bill, and the thing that we are going to look at is in the consolidation of September 22, after the authorizers have acted, is to bring the House and Senate together and terminate the 21 different agencies that we are looking at in the Department of Commerce.

The Department of Commerce, as Mrs. CHENOWETH has said, is a collection of over 100 programs and we had to analyze each one of those programs. Each member of the task force took a section of the Department of Commerce, looked at it very carefully, and made recommendations of what should be done with it. Seventy-one of them are duplicated someplace else in the Federal Government, so it was very easy to consolidate many of them.

Of the 100 programs, 97 of them were either duplicated someplace else in the Federal Government and/or they were duplicated in the private sector, so only 3 programs were really being done that needed to be done by the Government.

So we create a Department of Commerce Resolution Agency and that agency will be set up within 6 months and that agency will be a sublevel Cabinet position that will take care of resolving all of Commerce's business over another 2½ year period.

Mr. Speaker, this is a very orderly transition to dismantle a department of Government, to give the people in this country a little less government, a little lower taxes. We want to let people keep more of what they earn and save, and make more decisions about how they spend their money and not Government, and we think that Americans will always make a better decision than the Government will.

Mr. TIAHRT. I am sure you have done a lot of research when you looked into how the Department of Commerce operates, and you must have spoken with past Secretaries of Commerce. What has been the reaction of not only the current Department of Commerce but also those who have headed up that agency in the past?

Mr. CHRYSLER. Well, certainly Robert Mosbacher, who was the last head of the Department of Commerce, has been a very strong supporter of the dismantling act. He has called this the hall closet where you throw everything when you do not know where else it should be.

In fact, the Department of Commerce, 60 percent of it is NOAA, the National Oceanic and Atmospheric Administration, which to all of us in

America is better known as the weather. And when you look back through the history of this and start studying it, why did NOAA end up in the Commerce Department, you find that there was a point in Richard Nixon's presidency where he was upset with his Secretary of the Department of the Interior, and so he just took NOAA and gave it to the Commerce Department instead of putting it in the Department of Interior, where our bill will have it end up. That is where it rightfully should be.

Certainly the weather-related portion of NOAA will be in the Department of Interior. The satellites can be better managed by the Air Force, who does the best job in our Government of managing all satellites. I think, as we move through this process, looking at each and every area, there is a uniformed group in NOAA that will be eliminated.

We take this step by step in order to come to a very orderly, well-thought-out program of how we can dismantle this agency. And people like Elizabeth Bryant, who is at the University of Michigan now, who was the head of the Census Bureau, has absolutely endorsed this program to dismantle the Department of Commerce.

We have suggested putting the Census Bureau in the Department of Treasury, but there are others that have said we should create a separate statistical agency and use as a foundation the Bureau of Census and be able to share some of that information with other Federal agencies. I believe we could probably cut most other Federal departments by as much as 3 to 5 percent just by letting them get their statistical information from a central Government statistical agency.

Mr. TIAHRT. As a former businessman, you have been in touch with the business community, and I wonder what has been the reaction from the business community about this so-called voice for business in government? What has been their reaction to the elimination of this voice?

Mr. CHRYSLER. Well, we have many, many letters from the Business Leadership Council, National Taxpayers Union, Small Business Survival Committees, Competitive Enterprise Institute, Citizens for a Sound Economy, and the list goes on.

We also have a poll that was taken in Business Week magazine, that we entered into the RECORD on June 5, where business executives were polled on whether they would want to eliminate the Department of Commerce. And by a 2-to-1 margin, those business executives said, Yes, dismantle this Department of Commerce.

Certainly, business leaders like myself, and I had a company that I started in the corner of my living room, building convertibles after the automobile companies stop building convertibles,

Cars and Concepts; 10 years later I sold that business to my employees. I had 1,200 employees at that point, and we did business in 52 different countries around the world, and not once did we call the Department of Commerce, nor did the Department of Commerce call us.

That is certainly a testimony of a person that has created jobs, have lived that American dream, and have not needed the Government. I contend that it is not big government and/or big government programs and/or government bureaucracies that have built this into being the greatest country in the world. It is, in fact, entrepreneurship, free enterprise, capitalism, and rugged individuals that go out and risk their capital to create jobs.

You never see an employee unless you see an employer first. You have to have people to create jobs if you are going to have jobs. And that is what this is all about, is job creation. I think most business leaders, are convinced that the Federal efforts would be better focused on cutting taxes, enacting regulatory and tort reform, and balancing the Federal budget. That is what American businesses want us to be doing and that is what our business here in Congress is all about.

For the first time, TODD, we have elected more people from business to the U.S. Congress on November 8 than we did people from any other profession. That speaks loudly and we are here to conduct the business of the country. This is the largest business in the world called the U.S. Government and it needs to be run more like a business.

Mr. TIAHRT. I came across an article in the Washington Times today and there is a quote in here, it also quotes you talking about that you think that a lot of business has been successful without the help of the Department of Commerce, and they say that it would hamper American companies from performing in the global market if you eliminate this voice of business at the Cabinet level.

But there is a quote from Joe Cobb at the Heritage Foundation:

The claim by the Commerce Department that its cheerleading for American industry has increased the sales is about as accurate as the belief that the Dallas Cowboy Cheerleaders are responsible for the football team winning its games.

I think, as you point out, that American business has done an excellent job of expanding. I have a company called Caldwell Incorporated, run by Art Tieschgraber, and it has done a great job expanding into Siberia and a lot of other places.

Mr. CHRYSLER. Along those lines, it is a fact that the Department of Commerce claims a lot of successes with their trade effort and a thing that we have to understand is that the trade effort of the Department of Commerce is

only 4 percent of the Department of Commerce. What we are talking about certainly is the other 96 percent that we are looking at.

But with only 4 percent being focused on trade and of the programs that the Commerce Department claims to have brought new business and created jobs with, in fact, 83 percent of those are trade missions that American businesses would have completed successfully without the help of the Department of Commerce, and only 17 percent, again a very small number, that have really been directly helped by the Department of Commerce.

Now, I think that one of the things that we are looking at with the Department of Commerce in this dismantling act is my good friend from Florida, JOHN MICA is introducing a companion bill to H.R. 1756, to the Dismantling of Commerce Act, that will create an office of trade where we will take the USTR; there are 19 different departments in the Federal Government that deal with trade, and what we want to do is create one strong office of trade that will have a seat at the Cabinet level, or at the President's table, that will have a negotiating arm, an export arm, and an import arm that can do a better job at dealing with trade in this world than any other country in this world, and certainly the best job that the United States of America has ever had.

I think trade is an important part of our economy. We do live in a global economy today with fax machines and telephones and computers and all the technology. Moving into this new Information Age, the third wave of technology, we do have to compete on a global economy and I think we can build an office of trade that, in fact, will be the strongest that this country has ever seen.

Mr. TIAHRT. I appreciate your response to the questions I have given you. You know, we as freshmen had often sought the leadership of others and there is a gentleman from your State, Mr. CHRYSLER, Congressman SMITH from Michigan, that would like to give some comments on the elimination of the Department of Commerce. We really appreciate him being here and helping us with this.

Mr. SMITH. Mr. TIAHRT, thank you very much. I appreciate your yielding. I want to start out, TODD, DICK, HELEN, with the fact that the freshman class, having more businesspeople in that class than any class in recent history, has made a tremendous difference of bringing common sense back to Washington.

And you know, it is such a tremendous hole that we have dug for ourselves. I heard the analogy, how do you describe what it means to be \$5 trillion in debt and why is it important that we look at departments that are not serving a useful function like the Depart-

ment of Commerce to try to reduce the system of this overbloaded bureaucracy?

□ 2215

Mr. Speaker, I heard one example that I thought was interesting, and it gives a little perspective, and that is, if you tightly stack a bunch of \$1,000 bills and you make it 4 inches high, you end up with the equivalent of \$1 million. If you keep stacking tightly that \$1,000 bill stack and you go 300 feet high, it is \$1 billion. If you go 63 miles high, it is \$1 trillion. If you get over 300 miles into outer space, it is this Federal budget.

We have to start now. The reasonable place to start is with departments that are not fulfilling a useful purpose.

I would particularly like to commend my colleague from Michigan who has come from business and is trying to make some common sense out of this huge Federal bureaucracy. One of the issues that he has been working on is the dismantling of the Department of Commerce. I say yea. I say, the freshmen class and people like DICK CHRYSLER is what is going to make it happen to be a reality, to do what Alan Greenspan says.

If we are able to reach a balanced budget, then we will have such a strong underlying economy that this Nation is going to take off in jobs, and our kids and our grandkids are going to have a better standard of living than we do. If we do not do it, if we are unable to reach a balanced budget and we go back to the old ways of taking pork barrel projects home, of doing more and more things because we think it is going to help us get reelected, then we are going to end up with our kids and our grandkids not paying the huge debt that we are accumulating, but they are going to have a lower standard of living than we had.

I just think it is so exciting, after decades, after 40 years of moving toward a bigger and bigger, huge Federal bureaucracy, we are looking at not just freezing the size of this bureaucracy, but looking at actually reducing it, by taking one of the departments, the Department of Commerce, and we can eliminate the hub of corporate welfare and political patronage by doing away with the Department of Commerce.

Mr. Speaker, the Department is an amalgamation of Federal agencies, many of which have duplicate services. DICK CHRYSLER's bill moves us into a situation where we take the good, useful parts of the Department and we privatize them or we move them to other sectors of the Federal Government. The areas that are not serving a useful purpose, where we have just loaded up the different agencies with political patronage, we are doing away with. It is a start. It is a \$7 billion start over 5 years.

I am proud to be a part of the discussion tonight, and I would like to ask

DICK CHRYSLER the question of how you see American businesses expanding job opportunities in this country if we are not able to reduce the size of the Federal bureaucracy.

Mr. CHRYSLER. Thank you very much for the kind words and your support and your guidance.

Mr. Speaker, quite frankly, being a freshman here and going through all that we have had to go through in the first 6 months, well in excess of over 500 votes, and finding a place to stay and hiring staffs and setting up offices, it has been a real challenge, and it has only been through your guidance and your help and your advice that we have been able to keep pace with the guys that have been here for a few years, and they have been, and you especially, have been very helpful to us.

When you are looking at business and getting down to starting to run this Federal Government like a business, you know, I think that is really what dismantling this Department of Commerce act is all about. Of course, I guess when you get right down to it, it is for our kids, my kids, Rick, Phill, Christy, and my grandkids, Chloe and Heather.

When it is their turn, we have to make sure that they at least have the same opportunity that we have been blessed with in our lives, and furthermore, I think they deserve it. They deserve at least the opportunity that we have had in our life. That is really what it is all about. I think it is the kindest and most compassionate thing that we can do for the American people and every child and every grandchild out there.

As we look at the job creation, which I think is the best welfare program we could have in this country is to create jobs, and as we go through with the Contract With America, creating jobs, creating a job provider's climate, which is so essential to job creation. As I said, you never see an employee unless you see an employer first, which means you have to have people that are going to be willing to take the risk, take the chance, risk their capital to create those jobs.

By streamlining this Federal Government, as Nick Smith said, reducing the debt and the deficit, Alan Greenspan has said that we can reduce by 2 percent the interest rates, at least 2 percent was his statement. What that means to just farmers, and certainly Nick Smith is a farmer from the State of Michigan, he still lives on a farm, has lived on a farm all of his life. For farmers alone, we could save farmers on just farm property in this country \$10.65 billion just by reducing that interest rate by 2 percent.

Mr. SMITH of Michigan. Will the gentleman yield? It seems to me in discussing the Department of Commerce or any reduction in the Federal Government spending, there are two questions: Does it make sense to cut this

particular program, and the overall picture is how important is it to cut? You related to the fact that it is important to cut. But I wonder how many people listening to us tonight realize what percentage of all of the money lent out this year will be borrowed by the Federal Government? The Federal Government will borrow 42 percent of all of the money lent out in the United States this year. That means that people that want to have that money available to buy a car or go to college or most importantly, expand their businesses and jobs, are not going to have that money available.

If government gets out of insisting that they take 42 percent of all of the money that is up for borrowing, Alan Greenspan, our top banker in this country, Alan Greenspan, the Chairman of the Federal Reserve, says that interest rates will drop exactly the way you say, Dick. They are going to drop some place between 1.5 and 2 percent. That means everything is going to be cheaper in this country for people that need to borrow money, whether it is going to school or buying a home or expanding their business. So it does make a difference.

On the second point, how about how are we going to know whether it is reasonable to close down the Department of Commerce? Well, I called our Michigan Department of Commerce in Michigan that is very active in promoting jobs and business opportunities in Michigan, I said, how often do you call the United States Department of Commerce? They said, never. They do not contact the United States Department of Commerce; it is not a service in terms of their efforts for business and job expansion.

I asked the Chamber of Commerce in the United States that has 200,000 members, how many of your members have called in expressing concern about closing the Department of Commerce? Four. They said, four. Out of 200,000 members, they said four have called in, saying are we sure this is the right thing to do?

I think it is evident that this is one department that people do not use that does not expand business, and I just congratulate the freshmen and encourage them to keep the spirit, because your spirit is what is keeping the rest of us going today.

Mr. TIAHRT. You know, we have been talking about this dream for a better America and pointing out that the Federal Government borrowing so much money and driving interest rates up by 2 percent is almost overwhelming, when you think about how much money, \$10.65 billion just for farmers alone, extra interest that they have to pay.

When I went home to Kansas the last time, I got out of the airport and my necktie blew over my shoulder, so I knew I was home. But on my way

home, it was 10:30 at night, and out there they were still combining, trying to get a few more bushels, because they want to save as much money, they want to pass on the farm to the next generation. My parents tried to do that for me. I grew up on a farm. But because things were too tough for them, they could not pass that on to their kids. So it is important.

When I think about how much money they spent, one year they spent \$85,000 in interest alone, and how that could have gone toward taking down their notes, it is just amazing what they do.

Mr. MICA. Mr. Speaker, I want to take just a moment to say really thank you to both of the gentlemen, the gentleman from Kansas [Mr. TIAHRT] and the gentleman from Michigan [Mr. CHRYSLER]. I think you really represent the hope of this country, and I cannot tell you how much I admire you and what you are trying to do. You were sent here with a specific message or directive of an overwhelming mandate, probably one of the rare times when everybody from one party across the board or across the country got elected.

But you are the leaders. I came just a few months before, 24 months before, this is only my second term, with some of the hopes and dreams and aspirations for changing the Government, making it a better place. But it was very difficult. We did not have the votes. You have the votes and I admire you.

I also would ask you to read this little comment up here above me in the back by Daniel Webster. You know, as I was sworn here, it impressed me, his words about leaving something worthy for future generations to remember. And that is what I think you are doing. You embody the spirit of change and reform that I think the American people want and have anticipated.

I ask you not to give up on your attempt to restructure one agency. You are down to one agency. I know you have been beaten over the brow; I know you have been urged not to proceed, and I know there are 1,000 reasons for deviating. But really, I think we can start with the Department of Commerce, and I think you have shown that that could be an example. It is an example of, you know, Commerce has been sort of a dumping ground over the years. Most people think it is 95 percent helping commerce and trade. That is why some people say well, save this, it is important today that we do that. Actually, they do not realize really, in trade and export it is less than 5 percent of the entire budget and a small number of the employees.

So there are many people, myself included, rooting for you. Let me tell the gentlemen, this place is the hardest place to bring about change. It is very difficult, but in fact you can do it. Our freshmen class, we abolished the select

committees when they said you could not do that. We were threatened to be thrown out of here if we exposed who signed the discharge petitions and the gag law. We stood here, just a few of us, like you are standing here tonight, and we changed the course of this place and the way this place is run.

There are not many of you out here tonight, it is late at night, it is kind of like the night we were out here and made that dramatic change in the conduct of the business of this Congress.

So I salute you, I commend you, you are on the right track. Mr. CHRYSLER has not proposed—I have read his proposal to just trash all of the good functions in the Department of Commerce. In fact, I think he has started the debate. Let's look at how we can do things better. Does it make sense to have the Federal Government do these functions that have been done? Does it make sense for this to be done by the private sector? Can we apply a cost-benefit to this, which is something we tried to get?

The business thinking that you have brought to this Congress as an approach is so important, and that is what you need to apply to this dismantling of the Department of Commerce, that we see that the functions are appropriately assigned and then revised. That is exactly what you are proposing, not any destruction, not any unnecessary elimination, but an improvement, and you can do more with less, just a totally different approach.

So again, I commend you. I have enjoyed working with you. I have a proposal that we are trying to reach a consensus on because we know there are some good things in the Department of Commerce, particularly in trade, where so many people have said, let's save the trade functions. We have a joint proposal which we hope to introduce later this week that saves all of the elements. It actually will spend less money, and it will provide us with the mechanism so that the United States can compete in the decades ahead in a new arena where most of the jobs are created, where most of the opportunities are in exports and in trade, and provide us with the tools to do the jobs.

□ 2230

So, we are working together and have, in fact, come up with a plan to salvage the most important elements. The other elements, as I understand it, will all be examined, looked at, by the appropriate committees.

So I cannot tell you from the bottom of my heart, from the bottom of the heart of everybody I talk to when I go home, around the country, how encouraged we are by what you are doing. Do not give up. Do not let them throw roadblocks in front of you. Continue, and continue on a responsible, reasonable course like you have, and you can

make a change, and you can make changes that will be worthy of being remembered by future generations, just as that little edict on there commands each of us who have the honor and privilege of serving here.

So I thank both of you for your leadership for the other 71 freshmen. I thank the gentleman from Michigan [Mr. SMITH] for his leadership, and the others on this issue and the others who have spoken here tonight.

Mr. TIAHRT. I suppose we get a little closer to the time. I want to allow the gentleman from Michigan [Mr. CHRYSLER] to close up his convincing story on the elimination of the Department of Commerce.

Mr. CHRYSLER. Well, I will only say to my good friend, JOHN MICA from Florida, that in the words of Winston Churchill we will never, never, never, never, never give up and you know, if we had a Department of Commerce that was a true voice for businesses, what that Department of Commerce would be taking about is eliminating the \$550 billion worth of regulations that are put onto American businesses that make us uncompetitive in the rest of the world. We would also be dealing with this litigious society that we live in with some true, meaningful tort reform.

I mean in today's litigious society we would not even bring penicillin and/or aspirin to market; that is how bad things have gotten, and of course, most importantly, as we are doing, working to balance the budget, to create capital for businesses, and I think, and you look at the 163 job-training programs in the Departments of Labor and Education, of which they only want to claim about 70 because the rest of them have never created a job, and in fact one of them are spending about a half-million dollars for each job that they create, and I mean I said just give a person the money, why are you wasting their time here if they are going to spend that much money?

But I would like to see that consolidated down to about three job-training programs. I would like to see one of those job-training programs specifically work toward helping and training entrepreneurs because for every entrepreneur we can train and make successful, we can create 5, 6, 10, or maybe even 100, or certainly in my own case 1,200 new jobs. That is the way to create jobs. That is what a Department of Commerce should be doing to help the business community. That is the kind of government we want to create.

Mr. TIAHRT. I yield to the gentleman from Michigan [Mr. SMITH].

Mr. SMITH of Michigan. I think my summation, Mr. Speaker, would be to the American people that, look, these are politicians down here. If the American people decide this is important, those of people that might be viewing this tonight, you know, call your Rep-

resentatives in Congress, give them some encouragement, because we need the will of the American people to make sure we accomplish this giant task.

So, Mr. Speaker, I am proud to be here with this delegation, and I just hope the American people feel that it is important that we bring down the size of this overbloated Government, that we support this initial step of doing such things as closing one of the least useful departments at State government.

Mr. TIAHRT. I yield to the gentleman from Florida [Mr. MICA] for any closing remarks.

Mr. MICA. Again I salute you. This is just the beginning of the story. The rest of the story, as Paul Harvey would say, is that 19 agencies of Federal Government dealing in trade and export, spending \$3 billion, and in fact you are creating a nucleus for many, many more potential savings in government and, again, trying to make an inroad.

The hardest thing to do around here, I have always found, is to present a new idea, but you have a new idea, you have a new approach. I commend you, and I urge you to go forward, and we can do a lot better, not only with the Department of Commerce, but with the rest of this huge government bureaucracy.

Mr. TIAHRT. I just want to thank the gentleman from Florida [Mr. MICA] for coming down and bringing this very important issue to the American public, the gentleman from Michigan [Mr. SMITH], also the other gentleman from Michigan [Mr. CHRYSLER], and I want to thank the gentlewoman from Idaho [Mrs. CHENOWETH].

You know the American public needs to know that this is an historical event. The elimination of a Cabinet-level agency has never occurred before in the United States. We are about to make history once again in the 104th Congress, so stay tuned.

#### LEAVE OF ABSENCE

By unanimous consent, leave of absence was granted to:

Mr. BACHUS (at the request of Mr. ARMEY), for today after 3:45 p.m., on account of family matters.

Mr. FORBES (at the request of Mr. ARMEY), for today after 3:30 p.m., on account of illness.

#### SPECIAL ORDERS GRANTED

By unanimous consent, permission to address the House, following the legislative program and any special orders heretofore entered, was granted to:

(The following Members (at the request of Mr. FIELDS of Louisiana) to revise and extend their remarks and include extraneous material:)

Mr. TOWNS, for 5 minutes, today.

Mr. FALEOMAVAEGA, for 5 minutes, today.

Mr. STUPAK, for 5 minutes, today.

Mr. MONTGOMERY, for 5 minutes, today.

Ms. EDDIE BERNICE JOHNSON of Texas, for 5 minutes, today.

Mr. OBERSTAR, for 5 minutes, today.

Mr. PALLONE, for 5 minutes, today.

(The following Members (at the request of Mr. MCINNIS) to revise and extend their remarks and include extraneous material:)

Mr. METCALF, for 5 minutes, today.

Mr. MCINNIS, for 5 minutes, today.

Mr. HOKE, for 5 minutes, today.

Mr. LONGLEY, for 5 minutes, today.

Mrs. SMITH of Washington, for 5 minutes, today.

Mr. CRAPO, for 5 minutes, today.

Mr. HOEKSTRA, for 5 minutes, today.

#### EXTENSION OF REMARKS

By unanimous consent, permission to revise and extend remarks was granted to:

(The following Members (at the request of Mr. FIELDS of Louisiana) and to include extraneous matter:)

Mrs. MINK of Hawaii.

Mrs. MALONEY, in two instances.

Mr. MFUNE.

Mr. CLYBURN.

Mr. PAYNE of New Jersey.

Mr. HAMILTON.

Mr. ANDREWS.

Mr. MILLER of California.

M4. OBEY.

Mr. BARCIA.

Mr. FAZIO of California.

Mrs. MEEK of Florida.

Ms. HARMAN.

Ms. JACKSON-LEE.

(The following Members (at the request of Mr. MCINNIS) and to include extraneous matter:)

Mr. BURTON of Indiana.

Mr. NUSSLE.

Mr. MARTINI.

Mrs. SEASTRAND.

Mr. SOLOMON.

Mr. GOODLING.

Mr. QUINN.

#### ADJOURNMENT

Mr. SMITH of Michigan. Mr. Speaker, I move that the House do now adjourn.

The motion was agreed to; accordingly (at 10 o'clock and 36 minutes p.m.), the House adjourned until tomorrow, Wednesday, July 26, 1995, at 10 a.m.

#### REPORTS OF COMMITTEES ON PUBLIC BILLS AND RESOLUTIONS

Under clause 2 of rule XIII reports of committees were delivered to the Clerk for printing and reference to the proper calendar as follows:

Mr. SOLOMON: Committee on Rules. H.R. 1162. A bill to establish a deficit reduction trust fund and provide for the downward adjustment of discretionary spending limits in

appropriation bills; with amendments (Rept. 104-205, Pt. 1). Ordered to be printed.

Mr. QUILLEN: Committee on Rules. House Resolution 201. Resolution providing for consideration of the bill (H.R. 2099) making appropriations for the Departments of Veterans Affairs and Housing and Urban Development, and for sundry independent agencies, boards, commissions, corporations, and offices for the fiscal year ending September 30, 1996, and for other purposes (Rept. 104-206). Referred to the House Calendar.

## PUBLIC BILLS AND RESOLUTIONS

Under clause 5 of rule X and clause 4 of rule XXII, public bills and resolutions were introduced and severally referred as follows:

By Mr. TAUZIN (for himself, Mr. DOOLEY, Mr. ARCHER, Mr. HAYES, Mr. FIELDS of Texas, Mr. MOORHEAD, Mr. WILSON, Mr. THORNBERRY, Mr. FROST, Mr. BONILLA, Mr. SAM JOHNSON of Texas, Mr. STOCKMAN, Mr. BREWSTER, Mr. ALLARD, Mr. BAKER of Louisiana, Mr. BARTON of Texas, Mr. LAUGHLIN, Mr. HASTINGS of Washington, and Mrs. CUBIN):

H.R. 2106. A bill to provide for the energy security of the Nation through encouraging the production of domestic oil and gas resources in deep water on the Outer Continental Shelf in the Gulf of Mexico, and for other purposes; to the Committee on Resources.

By Mr. HANSEN:

H.R. 2107. A bill to amend the Land and Water Conservation Fund Act of 1965 to improve the quality of visitor services provided by Federal land management agencies through an incentive-based recreation fee program, and for other purposes; to the Committee on Resources.

By Ms. NORTON (for herself, Mr. DAVIS, Mr. MCHUGH, Mr. GUTKNECHT, Mr. LATOURETTE, Mr. FLANAGAN, Mr. WALSH, and Miss COLLINS of Michigan):

H.R. 2108. A bill to permit the Washington Convention Center Authority to expend revenues for the operation and maintenance of the existing Washington Convention Center and for preconstruction activities relating to a new convention center in the District of Columbia, to permit a designated authority of the District of Columbia to borrow funds for the preconstruction activities relating to a sports arena in the District of Columbia and to permit certain revenues to be pledged as security for the borrowing of such funds, and for other purposes; to the Committee on Government Reform and Oversight.

By Mr. GUTIERREZ:

H.R. 2109. A bill to amend title 42, United States Code, and title 15, United States Code, to establish provisions to assist low income families and seniors in the event of severe heat emergencies; to the Committee on Commerce, and in addition to the Committee on Economic and Educational Opportunities, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned.

By Mr. HASTINGS of Washington (for himself, Mr. DICKS, Mr. NETHERCUTT, Ms. DUNN of Washington, Mr. WHITE, Mr. BUNN of Oregon, Mr. TATE, Mr. METCALF, Mrs. SMITH of Washington, and Mr. COOLEY):

H.R. 2110. A bill to provide leadership, improved efficiencies, and regulatory clarity for Department of Energy waste manage-

ment and environmental restoration efforts at the Hanford Reservation and certain other Defense Nuclear Facilities; to the Committee on Commerce, and in addition to the Committees on National Security, and Resources, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned.

By Mr. MILLER of California:

H.R. 2111. A bill to designate the Social Security Administration's Western Program Service Center located at 1221 Nevin Avenue, Richmond, CA, as the "Francis J. Hagel Building"; to the Committee on Transportation and Infrastructure.

By Mr. TORRICELLI:

H.R. 2112. A bill to amend title 38, United States Code, to limit per diem payments by the Secretary of Veterans Affairs to State veterans homes; to the Committee on Veterans' Affairs.

By Mr. STUPAK (for himself, Ms. FURSE, Mr. RUSH, Mr. KLINK, Mr. KECHAN, Mrs. SCHROEDER, and Miss COLLINS of Michigan):

H. Res. 202. Resolution amending the Rules of the House of Representatives to require that Members who change political parties repay certain funds to the political party from which the change of affiliation was made; to the Committee on Rules.

By Mr. STUPAK (for himself, Ms. FURSE, Mr. RUSH, Mr. BARRETT of Wisconsin, Mr. KLINK, Mr. MEEHAN, Mrs. SCHROEDER, and Miss COLLINS of Michigan):

H. Res. 203. Resolution amending the Rules of the House of Representatives to provide that the House may declare vacant the office of any Member who publicly announces a change in political party affiliation; to the Committee on Rules.

## PRIVATE BILLS AND RESOLUTIONS

Under clause 1 of rule XXII,

Mr. ACKERMAN introduced a bill (H.R. 2113) to renew and extend patents relating to certain devices that aid in the acceleration of bodily tissue healing and reduction of pain; which was referred to the Committee on the Judiciary.

## ADDITIONAL SPONSORS

Under clause 4 of rule XXII, sponsors were added to public bills and resolutions as follows:

H.R. 26: Mr. SCHAEFER.

H.R. 250: Mr. MILLER of California, Ms. MCKINNEY, and Mr. REYNOLDS.

H.R. 394: Mr. TORKILDSEN, Mr. SISISKY, Mrs. MORELLA, Mr. CRAPO, Ms. PRYCE, Mr. BAESLER, Mr. BASS, and Mr. LINDER.

H.R. 662: Mr. BISHOP, Mr. BARTLETT of Maryland, and Mr. HASTINGS of Florida.

H.R. 743: Mr. KOLBE, Mr. HASTINGS of Washington, and Mr. HERGER.

H.R. 789: Mr. RADANOVICH, and Mr. BROWNBACK.

H.R. 899: Mr. HUNTER, Mr. MEEHAN, and Mr. NEAL of Massachusetts.

H.R. 1023: Mr. HOUGHTON.

H.R. 1066: Mr. LIVINGSTON.

H.R. 1083: Mr. GEKAS.

H.R. 1161: Mr. CUNNINGHAM.

H.R. 1162: Mr. SOLOMON, Mr. GOSS, Mr. ROHRBACHER, Mrs. CUBIN, Mrs. CHENOWETH, Mr. SHADEGG, and Mr. PETERSON of Minnesota.

H.R. 1201: Ms. FURSE, Mr. WARD, Mr. MEEHAN, Mr. STUDDS, and Mr. GEJDENSON.

H.R. 1300: Mr. HOKSTRA.

H.R. 1394: Mr. PASTOR.

H.R. 1448: Ms. MOLINARI, Mrs. CHENOWETH, Mrs. CUBIN, Mr. PONBO, Mrs. SEASTRAND, Mrs. SMITH of Washington, Mr. POMEROY, Mr. TIAHRT, Mr. SMITH of New Jersey, and Mr. MASZULLO.

H.R. 1539: Mr. REYNOLDS, Mr. McDERMOTT, Ms. NORTON, and Mr. STUPAK.

H.R. 1540: Mr. BISHOP, Mr. MORAN, Mr. CANADY, Mr. UNDERWOOD, Mr. EHLERS, Ms. KAPTUR, Mr. MONTGOMERY, and Mr. PORTER.

H.R. 1651: Mr. ZIMMER.

H.R. 1735: Mr. PETERSON of Minnesota, Mr. DEUTSCH, and Mr. BOUCHER.

H.R. 1767: Mr. FILNER.

H.R. 1968: Ms. PRYCE.

H.R. 1978: Mr. MATSUI, Mr. WHITE, and Mr. STUPAK.

H.R. 2060: Mr. SMITH of Michigan.

H.R. 2100: Mr. CANADY, Mr. BILIRAKIS, Mr. YOUNG of Florida, Mr. SHAW, Mr. JOHNSTON of Florida, Mr. HASTINGS of Florida, Mrs. MEEK of Florida, Mr. DIAZ-BALART, Ms. ROSELENTIN, Mr. STEARNS, Mr. SCARBOROUGH, Mr. GIBBONS, Mr. MILLER of Florida, Ms. BROWN of Florida, and Mr. DEUTSCH.

H. Con. Res. 10: Mr. MATSUI, Mr. ZIMMER, Mr. BARTLETT of Maryland, and Mr. GILLMOR.

## AMENDMENTS

Under clause 6 of rule XXIII, proposed amendments were submitted as follows:

H.R. 2002

OFFERED BY: Mr. NADLER

AMENDMENT No. 31: At the end of the bill, add the following new title:

TITLE V

ADDITIONAL GENERAL PROVISIONS

SEC. 501. None of the funds made available in this Act may be used for improvements to the Miller Highway in New York City, New York.

H.R. 2076

OFFERED BY: Mr. ALLARD

AMENDMENT No. 43: Page 47, strike lines 1 through 6, relating to the Under Secretary for Technology and the Office of Technology Policy.

H.R. 2076

OFFERED BY: Mr. ENGEL

AMENDMENT No. 44: Page 40, line 24, strike "\$19,000,000" and insert "\$21,499,000". Page 42, line 6, strike "\$100,000,000" and insert "\$97,501,000".

H.R. 2076

OFFERED BY: Mr. ENGEL

AMENDMENT No. 45: Page 41, insert the following after line 6:

ENDOWMENT FOR CHILDREN'S EDUCATIONAL TELEVISION

For expenses necessary to carry out the provisions of the National Endowment for Children's Educational Television Act of 1990, title II of Public Law 101-437, including costs for contracts, grants, and administrative expenses, \$2,499,000, to remain available as provided in section 394(h) of the Communications Act of 1934.

Page 42, line 6, strike "\$100,000,000" and insert "\$97,501,000".

H.R. 2076

OFFERED BY: Mr. FIELDS of LOUISIANA

AMENDMENT No. 46: Page 24, line 6, strike "\$2,000,000,000" and all that follows through

"1995" on line 9 and insert "\$1,800,000,000 shall be for Local Law Enforcement Block Grants, pursuant to H.R. 728 as passed the House of Representatives on February 14, 1995; \$200,000,000 for crime prevention and model grants as authorized by title III of the 1994 Act;".

H.R. 2076

OFFERED BY: MR. GOODLING

AMENDMENT No. 47: Page 102, after line 20, insert the following:

SEC. 609. None of the funds made available by this Act may be used for any United Nations peacekeeping mission when it is made known to the Federal official having authority to obligate or expend such funds that such funds will be used for the involvement of United States Armed Forces under the command or operational control of a foreign nation.

H.R. 2076

OFFERED BY: MR. GUTIERREZ

AMENDMENT No. 48: Page 17, line 2, before the period insert "Provided further, That \$4,000,000 shall be available to promote the opportunities and responsibilities of United States citizenship with the assistance of appropriate community groups, in accordance with section 332(h) of the Immigration and Nationality Act".

H.R. 2076

OFFERED BY: MR. HASTINGS OF FLORIDA

AMENDMENT No. 49: Page 18, line 2, strike "\$2,574,578,000" and insert "\$2,539,578,000".

Page 77, line 8, strike "\$233,000,000" and insert "\$268,000,000".

H.R. 2076

OFFERED BY: MR. KIM

AMENDMENT No. 50: At the end of the bill, insert after the last section (preceding the short title) the following new section:

SEC. 609. None of the funds made available in this Act for the Department of State may be used to permit or facilitate making local currencies available to Members and employees of the Congress to travel to North Korea except when it is made known to the Federal official having authority to obligate or expend such funds that North Korea does not have a policy of discriminating, on the basis of national origin or political philosophy, against Members and employees of the Congress in permitting travel to North Korea.

H.R. 2076

OFFERED BY: MR. KLUG

AMENDMENT No. 51: On page 102, after line 20, insert before the short title the following new section:

"SEC. . None of the funds made available in title II for the National Oceanic and Atmospheric Administration under the heading 'Fleet Modernization, Shipbuilding and Conversion' may be used to implement sections 603, 604, and 605 of Public Law 102-567."

H.R. 2076

OFFERED BY: MR. LATOURETTE

AMENDMENT No. 52: On page 44, line 4, strike "1,690,452,000" and insert in lieu thereof "1,695,913,000".

On page 44, line 14, strike "\$1,687,452,000" and insert in lieu thereof "\$1,692,913,000".

On page 51, line 4, strike "\$2,411,024,000" and insert in lieu thereof "\$2,408,524,000".

On page 57, line 4, strike "\$1,716,878,000" and insert in lieu thereof "\$1,713,917,000".

On page 59, line 3, strike "\$363,276,000" and insert in lieu thereof "\$360,315,000".

H.R. 2076

OFFERED BY: MRS. MINK OF HAWAII

AMENDMENT No. 53: Page 45, line 3, insert before the period the following:

: *Provided further*, That for the National Marine Fisheries Service for information collection and analyses, \$520,500 is available with respect to Hawaiian monk seals and \$240,000 is available with respect to Hawaiian sea turtles.

H.R. 2076

OFFERED BY: MS. NORTON

AMENDMENT No. 54: Page 29, strike line 12 and all that follows through line 18.

Redesignate succeeding sections accordingly.

H.R. 2076

OFFERED BY: MR. SKAGGS

AMENDMENT No. 55: On page 4, line 14, strike "\$401,929,000"; and in lieu thereof insert "\$424,406,000"; on page 6, line 19, strike "\$96,825,000" and in lieu thereof insert "\$874,348,000".

H.R. 2076

OFFERED BY: MR. STUPAK

AMENDMENT No. 56: Page 24, line 7, after "Grants" insert "of such amount \$600,000,000 shall be available for rural areas".

H.R. 2099

OFFERED BY: MR. BARRETT OF WISCONSIN

AMENDMENT No. 4: Page , after line , insert the following:

SEC. 5. None of the funds appropriated in title II of this Act may be used for any activity (including any infrastructure improvement), or to guarantee any loan for any activity, that is intended, or likely, to facilitate the relocation or expansion of any industrial or commercial plant, facility, or operation, from one area to another area, if the relocation or expansion will result in a loss of employment in the area from which the relocation or expansion occurs.

H.R. 2099

OFFERED BY: MR. BARR

AMENDMENT No. 5: Page 97, after line 25, insert the following new section:

SEC. 519. None of the funds made available in this Act may be used for travel expenses for a public housing agency when it is made known to the Federal official having authority to obligate or expend such funds that the travel expenses cover travel of any member of the board of directors (or similar governing body) to a meeting, conference, or convention located 100 miles or further from the jurisdiction served by such public housing agency.

H.R. 2099

OFFERED BY: MR. DORNAN

AMENDMENT No. 6: Page 52, line 4, strike "\$394,052,000" and insert "\$329,052,000".

H.R. 2099

OFFERED BY: MR. DURBIN

AMENDMENT No. 7: Page 59, line 3, insert before the period the following:

: *Provided further*, That any limitation set forth under this heading on the use of funds shall not apply when it is made known to the Federal official having authority to obligate or expend such funds that the limitation would restrict the ability of the Environmental Protection Agency to protect humans against exposure to arsenic, benzene, dioxin, lead, or any known carcinogen

H.R. 2099

OFFERED BY: MR. KENNEDY OF MASSACHUSETTS

AMENDMENT No. 8: Page 20, line 25, strike "\$10,041,589,000" and insert "\$9,996,789,000".

Page 21, line 5, strike "\$19,939,311,000" and insert "\$19,894,511,000".

Page 24, line 1, strike "\$4,941,589,000" and insert "\$4,933,989,000".

Page 24, line 25, after the colon insert the following:

: *Provided further*, That amounts provided under this head may not be used for voucher assistance under the preceding 2 provisions if the provision of such voucher assistance for a number of families equal to the number of units covered by the terminated or expired contract would cost more than renewing the contract according to the terms of the contract and the United States Housing Act of 1937, and in the case of such a terminating or expiring contract such amounts may only be used for such renewal of the contract.

Page 25, after line 25, insert the following new item:

#### CONGREGATE SERVICES

For assistance for congregate services programs under section 802 of the Cranston-Gonzalez National Affordable Housing Act, \$44,800,000.

H.R. 2099

OFFERED BY: MR. KENNEDY OF MASSACHUSETTS

AMENDMENT No. 9: Page 20, line 25, strike "\$10,041,589,000" and insert "\$10,361,589,000".

Page 64, line 16, strike "\$320,000,000" and insert "\$0".

Page 39, after line 17, insert the following new subsection:

(c) EXEMPTION OF ELDERLY AND DISABLED FAMILIES FROM RENT INCREASES.—Subsections (a) and (b) of this section shall not apply with respect to any elderly family or disabled family (as such terms are defined in section 3(b) of such Act) who, on October 1, 1995, is receiving rental assistance under section 8 of the United States Housing Act of 1937 or is occupying a dwelling unit assisted under such section.

H.R. 2099

OFFERED BY: MR. KENNEDY OF MASSACHUSETTS

AMENDMENT No. 10: Page 23, strike "may" in line 7 and all that follows through "prepayment" in line 14 and insert the following: "shall use \$200,000,000 of any unobligated carryover balances under this heading as of September 30, 1995, for assistance for State or local units of government, tenant, and non-profit organizations to purchase projects where owners have indicated an intention to prepay mortgages and for assistance to be used as an incentive to prevent prepayment if such assistance is lower in cost.".

H.R. 2099

OFFERED BY: MR. KENNEDY OF MASSACHUSETTS

AMENDMENT No. 11: Page 24, strike line 15 and insert the following: "rental assistance under section 8 of such Act (including project-based assistance on behalf of elderly and disabled tenants of a project assisted under the terminated or expired contract) in the".

H.R. 2099

OFFERED BY: MR. KENNEDY OF MASSACHUSETTS

AMENDMENT No. 12: Page 46, strike "(a)" in line 17 and all that follows through line 23.

H.R. 2099

OFFERED BY: MR. KENNEDY OF MASSACHUSETTS

AMENDMENT No. 13: Page 87, after line 25, insert the following new section:

SEC. 519. None of the funds appropriated in title II of this Act may be used for voucher assistance under section 8(c) of the United



States Housing Act of 1937 if it is made known to the Federal official having authority to obligate or expend such funds that such voucher assistance is to be provided in connection with the termination or expiration of a contract for loan management assistance under section 8 of such Act and renewal of the loan management assistance contract according to the terms of the contract and such Act would provide rental assistance for an equal number of families at a lesser cost.

H.R. 2099

OFFERED BY: MR. MCINTOSH

AMENDMENT No. 14: On page 58, line 2, strike "(a)".

H.R. 2099

OFFERED BY: MR. OBEY

AMENDMENT No. 15: Page 8, line 9, after the dollar amount, insert the following: "(increased by \$230,000,000)".

Page 16, strike lines 12 through 21.  
Page 20, line 25, after the dollar amount, insert the following: "(increased by \$400,000,000)".

Page 70, line 13, after the dollar amount, insert the following: "(reduced by \$1,600,000,000)".

Page 71, line 5, after the dollar amount, insert the following: "(increased by \$400,000,000)".

H.R. 2099

OFFERED BY: MR. SHAYS

AMENDMENT No. 16: Page 20, line 25, strike "\$10,041,589,000" and insert "\$10,244,589,000".

Page 22, line 15, strike "\$1,000,000,000" and insert "\$1,203,000,000".

Page 72, line 1, strike "\$2,618,200,000" and insert "\$2,315,200,000".

H.R. 2099

OFFERED BY: MR. SHAYS

AMENDMENT No. 17: Page 20, line 25, strike "\$10,041,589,000" and insert "\$10,244,589,000".

Page 22, line 15, strike "\$1,000,000,000" and insert "\$1,203,000,000".

Page 72, line 1, strike "\$2,618,200,000" and insert "\$2,415,200,000".

H.R. 2099

OFFERED BY: MR. SHAYS

AMENDMENT No. 18: Page 20, line 25, strike "\$10,041,589,000" and insert "\$10,244,589,000".

Page 22, line 15, strike "\$1,000,000,000" and insert "\$1,203,000,000".

Page 70, line 13, strike "\$5,449,600,000" and insert "\$5,199,600,000".

H.R. 2099

OFFERED BY: MR. SHAYS

AMENDMENT No. 19: Page 20, line 25, strike "\$10,041,589,000" and insert "\$10,244,589,000".

Page 22, line 15, strike "\$1,000,000,000" and insert "\$1,203,000,000".

Page 70, line 13, strike "\$5,449,600,000" and insert "\$5,246,600,000".

H.R. 2099

OFFERED BY: MR. SHAYS

AMENDMENT No. 20: Page 20, line 25, strike "\$10,041,589,000" and insert "\$10,244,589,000".

Page 22, line 15, strike "\$1,000,000,000" and insert "\$1,203,000,000".

Page 71, line 5, strike "\$5,588,000,000" and insert "\$5,285,000,000".

H.R. 2099

OFFERED BY: MR. SHAYS

AMENDMENT No. 21: Page 20, line 25, strike "\$10,041,589,000" and insert "\$10,244,589,000".

Page 22, line 15, strike "\$1,000,000,000" and insert "\$1,203,000,000".

Page 71, line 5, strike "\$5,588,000,000" and insert "\$5,385,000,000".

H.R. 2099

OFFERED BY: MR. SHAYS

AMENDMENT No. 22: Page 20, line 25, strike "\$10,041,589,000" and insert "\$10,244,589,000".

Page 22, line 15, strike "\$1,000,000,000" and insert "\$1,203,000,000".

Page 61, line 24, strike "\$1,500,175,000" and insert "\$1,547,175,000".

Page 61, line 25, strike "\$1,000,000,000" and insert "\$1,047,000,000".

Page 72, line 1, strike "\$2,618,200,000" and insert "\$2,268,200,000".

H.R. 2099

OFFERED BY: MR. SHAYS

AMENDMENT No. 23: Page 20, line 25, strike "\$10,041,589,000" and insert "\$10,244,589,000".

Page 22, line 15, strike "\$1,000,000,000" and insert "\$1,203,000,000".

Page 61, line 24, strike "\$1,500,175,000" and insert "\$1,550,175,000".

Page 61, line 25, strike "\$1,000,000,000" and insert "\$1,050,000,000".

Page 70, line 13, strike "\$5,449,600,000" and insert "\$5,149,600,000".

H.R. 2099

OFFERED BY: MR. SHAYS

AMENDMENT No. 24: Page 20, line 25, strike "\$10,041,589,000" and insert "\$10,244,589,000".

Page 22, line 15, strike "\$1,000,000,000" and insert "\$1,203,000,000".

Page 61, line 24, strike "\$1,500,175,000" and insert "\$1,571,275,000".

Page 61, line 25, strike "\$1,000,000,000" and insert "\$1,071,100,000".

Page 71, line 5, strike "\$5,588,000,000" and insert "\$5,213,900,000".

H.R. 2099

OFFERED BY: MR. VENTO

AMENDMENT No. 25: Page 28, line 3, strike "\$576,000,000" and insert "\$845,000,000".

Page 64, line 16, strike "\$320,000,000" and insert "\$0".

Page 66, line 15, strike "\$100,000,000" and insert "\$130,000,000".

H.R. 2099

OFFERED BY: MR. VENTO

AMENDMENT No. 26: Page 64, line 16, strike "\$320,000,000" and insert "\$269,000,000".

Page 66, line 15, strike "\$100,000,000" and insert "\$130,000,000".

## EXTENSIONS OF REMARKS

THE EXPLOITATION OF CHILD  
LABOR IN INDIA

HON. DAN BURTON

OF INDIANA

IN THE HOUSE OF REPRESENTATIVES

Tuesday, July 25, 1995

Mr. BURTON of Indiana. Mr. Speaker, much attention was appropriately focussed on human rights abuses by the Indian Government against minorities in Kashmir and Punjab during recent consideration of H.R. 1868, the foreign aid appropriations bill for 1996. However, there exists another little-known human rights problem in India, which is every bit as grave. This problem, which received little discussion, is the exploitation of child labor. The United States Government and the international community have paid little attention to the prolific employment of young children. It is time to attend to this neglect.

Child labor in India is a grave and extensive problem. Children under the age of 14 are forced to work in glass-blowing, fireworks, and most commonly, carpet-making factories. While the Government of India reports about 20 million children laborers, other non-governmental organizations estimate the number to be closer to 50 million. Most prevalent in the northern part of India, the exploitation of child labor has become an accepted practice, and is viewed by the local population as necessary to overcome the extreme poverty in the region.

Child labor is one of the main components of the carpet industry. Factories pay children extremely low wages, for which adults refuse to work, while forcing the youngsters to slave under perilous and unhygienic labor conditions. Many of these children are migrant workers, the majority coming from northern India, who are sent away by their families to earn an income sent directly home. Thus, children are forced to endure the despicable conditions of the carpet factories, as their families depend on their wages.

The situation of the children at the factories is desperate. Most work around 12 hours a day, with only small breaks for meals. Ill-nourished, the children are very often fed only minimal staples. The vast majority of migrant child workers who cannot return home at night sleep alongside of their loom, further inviting sickness and poor health.

Taking aggressive action to eliminate this problem is difficult in a nation where 75 percent of the population lives in rural areas, most often stricken by poverty. Children are viewed as a form of economic security in this desolate setting, necessary to help supplement their families' income. Parents often sacrifice their children's education, as offspring are often expected to uphold their roles as wage-earning members of their clan.

The Indian Government has taken some steps to alleviate this monumental problem. In

1989, India invoked a law that made the employment of children under age 14 illegal, except in family-owned factories. However, this law is rarely followed, and does not apply to the employment of family members. Thus, factories often circumvent the law through claims of hiring distant family. Also, in rural areas, there are few enforcement mechanisms, and punishment for factories violating the mandate is minimal, if not nonexistent.

Legal action taken against the proliferation of child labor often produces few results. Laws against such abuses have little effect in a nation where this abhorred practice is accepted as being necessary for poor families to earn an income. Thus, an extensive reform process is necessary to eliminate the proliferation of child labor abuses in India which strives to end the desperate poverty in the nation. Changing the structure of the workforce and hiring the high number of currently unemployed adults in greatly improved work conditions is only the first step in this lengthy process. New labor standards and wages must be adopted and medical examinations and minimum nutrition requirements must be established in India. Establishing schools and eliminating the rampant illiteracy that plagues the country would work to preserve structural changes. However, these changes cannot be accomplished immediately. Pressure from the international community, especially the United States Government, is absolutely necessary to bring about change in India.

I believe that it is imperative for the U.S. Congress and the Clinton administration to pay more attention to the exploitation of children in India as well as other areas in South and Southeast Asia. Currently, Germany has instigated a pilot program that places a stamp on all imported carpets that are child labor free, thus urging consumers to buy these products. Because of the high price range of these carpets, similar programs can and should be given serious consideration in the United States.

The Child Labor Deterrence Act of 1993, which is still under consideration, prohibits importing to the U.S. any product made, whole or in part, by children under 15 who are employed in industry. While this aspect of the bill may be effective, the United States needs to take action regarding child labor abuses, specifically targeted at India. Mr. Speaker, I call on every Member of Congress to pay more attention to this little-recognized problem. We must acknowledge the fact that we cannot continue to sustain the exploitation of children by purchasing carpets woven by the hands of children.

TRIBUTE TO LELA HAYNES  
SESSION

HON. JAMES E. CLYBURN

OF SOUTH CAROLINA

IN THE HOUSE OF REPRESENTATIVES

Tuesday, July 25, 1995

Mr. CLYBURN. Mr. Speaker, I rise today to pay tribute to Dr. Lela Haynes Session for her many years of service to the people of Berkeley County and the State of South Carolina.

Dr. Session was born in Moncks Corner, SC, to the late Mr. and Mrs. David Haynes. She was educated in the public schools of Charleston and Berkeley Counties and later received her bachelor of science degree from Allen University and master of science degree from South Carolina State University. Dr. Session furthered her studies at North Carolina College, Duke University, Tuskegee Institute, and Union Baptist Seminary. She has also been awarded an honorary doctor of humane letters.

During her 28 years with the Berkeley County Schools, Dr. Session served as supervisor of elementary education, supervisor of adult education, director of retirement, and director of teacher welfare, personnel division.

Dr. Session has a long, impressive history of involvement in extracurricular and community activities, starting at Allen University in the early 1940's. While completing her undergraduate degree at Allen, she found time to participate in the drama club and the college choir. Dr. Session's leadership skills were evident in roles such as president of the Y.W.C.A., treasurer of Sunday school, and school nurse.

Endowed with a commitment to helping others and a keen sense of the need to improve quality of community life, Dr. Session's work epitomizes the motto, "Build Your Community, Build The World." She devotes her time, energy, and talents to a variety of civic and professional activities. Some of these activities include: State delegate to the National Democratic Convention, vice president of the Moncks Corner Precinct Democratic Party, president of the Berkeley County Habitat for Humanity, Sigma Gamma Rho Sorority, Trident United Way, National Education Association, and the National Council of Negro Women.

Dr. Session is a longtime member of the African Methodist Episcopal Church where she serves as a trustee and stewardess. She has served as a consultant for the Lay Organization of the 7th Episcopal District, director of public relations for the Connectional Lay Organization, Young People Director, and Educational Worker of the Women's Missionary Society.

Mr. Speaker, I commend Dr. Lela Haynes Session for a lifetime of dedicated service to the people of Berkeley County and the State of South Carolina and join her family and

● This "bullet" symbol identifies statements or insertions which are not spoken by a Member of the Senate on the floor.

Matter set in this typeface indicates words inserted or appended, rather than spoken, by a Member of the House on the floor.

friends in saluting her on September 2, 1995 at the Oaks Country Club in Goose Creek, SC.

**HONORING BILL HUBBARD AND 25 YEARS OF THE CENTER FOR HOUSING PARTNERSHIPS**

**HON. CAROLYN B. MALONEY**

OF NEW YORK

IN THE HOUSE OF REPRESENTATIVES

*Tuesday, July 25, 1995*

Ms. MALONEY. Mr. Speaker, I rise today to pay tribute to Mr. William N. Hubbard, founder of the Center for Housing Partnerships.

For 25 years, the Center for Housing Partnerships has been revitalizing decayed neighborhoods through a combination of government assistance, conventional financing, and private investment. The organization's objective is to renew dilapidated neighborhoods by restoring abandoned apartment buildings and turn of the century brownstones. Many of these buildings are then leased to low-income families under the section 8 program of the Department of Housing and Urban Development. Since 1971, the center has developed and managed over 20 projects, consisting of more than 3,000 apartment units, with a total value of over \$200 million.

The Center for Housing Partnerships was founded by my close friend, William N. Hubbard. Bill is president of Center for Housing Partnerships and is responsible for new business development as well as dealing with financial institutions and government agencies. He is a director of the Citizens Housing and Planning Council and was associated with the New York Urban Coalition's Housing Rehabilitation Task Force. Bill served as general counsel to New York State Senator Thomas Bartosiewicz, is a member of the State Democratic Senate Advisory Committee, and is finance chairman for Assemblyman Pete Grannis, chairman of the New York State Assembly Insurance Committee.

I would like to extend my sincerest thanks to Bill Hubbard and the Center for Housing Partnerships for their continuing efforts in revitalizing our city's communities. They are instilling renewed hope to communities who only saw the decay and despair of their crumbling neighborhoods. Thanks to the Center of Housing and Partnership, we can look forward to another 25 years of economic renewal and other important social benefits.

**LT. KURT S. OSUCH, AN AMERICAN HERO**

**HON. DONALD M. PAYNE**

OF NEW JERSEY

IN THE HOUSE OF REPRESENTATIVES

*Tuesday, July 25, 1995*

Mr. PAYNE of New Jersey. Mr. Speaker, I rise today to pay tribute to Marine Corps Lt. Kurt S. Osuch of Linden, NJ, because as he put it, "Marines do what Marines have to do." A horrible tragedy occurred on July 4, 1995. A traffic accident claimed the lives of Evelyn

Dotson, Gwendolyn King, Henrietta Lathen and Jeanne Sanford.

Because of the brave actions of this fine American and marine, the list of fatalities is not as long as it might have been. It was in the early hours of July 4 that Lieutenant Osuch saved the lives of Matthew and Johnnie Buie. Mr. and Mrs. Buie were the only survivors of six members of St. Augustine Presbyterian Church in Paterson, who were traveling from a communion that morning when their van burst into flames after it was struck by a car heading in the wrong direction on the Garden State Parkway.

Lieutenant Osuch, returning from a friend's house, noticed the burning van and unlike several other passing motorists, stopped and in a selfless act of courage, pulled the two survivors from the van's front seats to safety. Lieutenant Osuch said that he was just doing what anyone else would have done. The fact is, he responded extraordinarily.

Lt. Kurt Osuch's sense of duty did not begin with this incident. Lieutenant Osuch, a graduate of Linden High School, enlisted in the Marine Corps in July 1982. Following boot camp he became an aviation technician. In July 1984, he entered the 2d Marine Air Wing at Cherry Point, NC. He was stationed in Okinawa between December 1984 and January 1986, where he served in the 1st Marine Air Wing. Following his duties in Okinawa, Lieutenant Osuch was a marine security guard in Beirut, Lebanon until June 1988.

In August 1988, the Marine Commissioning Enlistment Program brought him to the campus of Auburn University. He graduated from Auburn in March 1991, joining the ranks of the 10 percent of marines who are selected for and complete the Marine Commissioning Enlistment Program.

Lieutenant Osuch then became a field artillery officer in the 2d Battalion of the 10th Marines in the 2d Marine Division. He served in this capacity until January 1995. During this time, Lieutenant Osuch served his country in Mogadishu, Somalia, participating in Operation Restore Hope. He has also received the Navy Achievement Award for superior performance of his duties. Lieutenant Osuch currently serves as an operations officer and works at the Marine recruiting headquarters in Iselin, NJ.

Mr. Speaker, we, in New Jersey, have been reminded how fortunate we all are that marines do what marines have to do. I urge all of my colleagues to join with me in acknowledging a real American hero. Lt. Kurt Osuch.

**TRIBUTE TO GEORGE E. NORCROSS, SR.**

**HON. ROBERT E. ANDREWS**

OF NEW JERSEY

IN THE HOUSE OF REPRESENTATIVES

*Tuesday, July 25, 1995*

Mr. ANDREWS. Mr. Speaker, I rise today to celebrate and honor the accomplishments and contributions of George E. Norcross, Sr. Mr. Norcross is a man who has lived the American dream through hard work and dedication to the community. Having recently retired as president of the AFL-CIO Central Labor Coun-

cil of South Jersey, I recognize Mr. Norcross as a shining example for us all.

For over half a century Mr. Norcross has served the working men and women of this country. Mr. Norcross began his career with the International Brotherhood of Electrical Workers. His leadership skills and personal rapport with others quickly earned him a position as an organizer with the International Union of Electric, Electrical, Salaried, Machine, and Furniture Workers. His dynamic leadership enabled him to lead successful organizing campaigns not only in New Jersey, but throughout the Nation. One such campaign brought him to Greenville, TN, where he met the future Mrs. Carol Norcross. After successful national campaigns, Mr. Norcross and his wife returned to Camden, NJ, to serve local 106 in Moorestown and raise their family.

After concentrating on organizational activities at the beginning of his career, Mr. Norcross turned his attention to the administration of local labor organizations as well as concentrating on civic participation and service. Since 1955, Mr. Norcross has served as president of the Union Organization for Social Service. His achievements as president of this organization range from food banks and clothing drives to the treatment of alcohol abuse and disaster relief. His commitment to the needs of his community has been unending, and his desire to improve the lives of those who live there inspirational. Under his leadership, the 80,000 members of AFL-CIO Central Labor Union contributed tens of millions of dollars and countless working hours in support of civic programs.

In 1979, Mr. Norcross founded and served as President of the RCA Local No. 106 in Moorestown, NJ, where he established such programs as annual food and clothing drives. In addition, he was an international representative for the International Union of Electrical Workers where he is remembered for creating scholarship programs for the children of union members.

Mr. Norcross is noted for his leadership for the United Way. In 1982, he began as chairman for the United Way campaign. Shortly thereafter, he served as vice president of the United Way of Camden County followed by his office as president of the United Way for Pennsylvania, New Jersey, and Delaware. Today, he is chairman of the United Way board. His leadership has inspired many to become involved in the work of United Way and the many services they provide to every community. In addition, Mr. Norcross founded the United Way Labor Support Committee, an entity dedicated to informing union members of the benefits extended to them by United Way.

Mr. Norcross is truly a man dedicated to the continued improvement of his community. His many accomplishments throughout his career testify to his commitment and tireless service. He will certainly be missed in his retirement, however, his accomplishments will continue to improve peoples' lives for decades. His dedication and service will serve as a continuous example for others. I commend George Norcross, Sr. for all that he has done for his community, and I wish him peace and happiness in the years to follow.

**INTRODUCTION OF RESOLUTION  
NAMING THE SOCIAL SECURITY  
ADMINISTRATION'S WESTERN  
PROGRAM SERVICE CENTER IN  
RICHMOND, CA, THE FRANCIS J.  
HAGEL BUILDING**

**HON. GEORGE MILLER**

OF CALIFORNIA

IN THE HOUSE OF REPRESENTATIVES

*Tuesday, July 25, 1995*

Mr. MILLER of California. Mr. Speaker, in recognition of the pivotal contributions yielded by Francis J. Hagel to the residents of the city of Richmond, I am introducing this resolution designating the Social Security Administration's Western Program Service Center to be named the Francis J. Hagel Building.

A resident of Richmond himself, Francis J. Hagel served his community as an Assistant Regional Commissioner for Processing Center Operations of the Social Security Administration's Western Program Service Center. Mr. Hagel oversaw the processing of benefit payment records for over 4.5 million people throughout the Nation, enhancing the quality of life of the denizens who were eligible for Social Security benefits.

As a citizen of Richmond, he was steadfast in his devotion to his city, providing crucial aid, in the form of community service, to fellow residents. As a result of his selfless and incalculable service to the city of Richmond and its habitants, Francis J. Hagel became an integral part of the foundations of the community, beloved by those who knew him.

This resolution is supported by the mayor and city council of Richmond.

Mr. Speaker, I'm sure you would agree, in light of these numerous invaluable contributions to his city and his neighbors, Francis J. Hagel is most deserving of the honor this resolution proposes to accord him in changing the name of the Social Security Administration's Western Program Service Center to the Francis J. Hagel Building.

**CRIME IS ON THE RISE**

**HON. WILLIAM J. MARTINI**

OF NEW JERSEY

IN THE HOUSE OF REPRESENTATIVES

*Tuesday, July 25, 1995*

Mr. MARTINI. Mr. Speaker, I rise today to address the House of Representatives with regard to a tragedy that has become far too common in this day and age. I am referring to the acts of senseless violence committed against our children that tear at the fabric of our society.

On a street in Paterson, NJ, a town in my congressional district, a young woman's dream to become a Wall Street entrepreneur or a scholar was shattered on Friday. She was attacked by unknown assailants who had approached her car and demanded money. When the young woman told her attackers that she had no money one of the men fired shots through the driver's side window. She was struck by the barrage of bullets; her best friend and the community were left in tears, by her side.

Cindy Del Carmen Villalba was 20 years old. She died 5 days short of her 21st birthday. Cindy was the valedictorian of her high school class, the first member of her family to attend college, and an honor student at Rutgers University in New Jersey where she studied business communications and Spanish. Cindy had just returned from a foreign study program where she taught, as well as learned from, schoolchildren in Costa Rica. She was 1 of 12 students chosen from Rutgers University to participate in the 6 week service, study program. In addition to her scholarly activities, she also was active in a dance troupe whose work explored Colombian themes and folklore, and she taught catechism at St. John's Cathedral.

Crime in our country is on the rise and the insecurity it breeds will erode the American peoples faith in the land of opportunity. It is with this passing that we as the Congress, as a Nation, and as a people need to summon the strength to dedicate ourselves to ending crime. Such an action will keep the memory of this young woman alive.

Mr. Speaker, please join me in extending my condolences to the family and friends of Cindy Del Carmen Villalba. It is a shame when a woman with such a bright future is taken from this world in such a senseless manner. She will be missed by everyone whose heart she touched and whose life she brightened.

**THE DISTRICT OF COLUMBIA CON-  
VENTION CENTER AND SPORTS  
ARENA AUTHORIZATION ACT OF  
1995**

**HON. ELEANOR HOLMES NORTON**

OF THE DISTRICT OF COLUMBIA

IN THE HOUSE OF REPRESENTATIVES

*Tuesday, July 25, 1995*

Ms. NORTON. Mr. Speaker, today I am introducing a bill that advances the process for realizing two major projects in the District of Columbia: The District of Columbia Convention Center and Sports Arena Authorization Act of 1995. This bill combines and refines two bills that were previously introduced, taking each of these projects another step forward.

The sections addressing the convention center project allow for the expenditure of previously collected taxes for preconstruction work so that cost estimates and time lines can be confirmed before the building process begins. Additionally, it allows for the expenditure of funds to operate the present convention center. This language goes greatly unchanged from that in the previously introduced bill, H.R. 1862.

The sections addressing the sports arena refine the language in previously introduced bill, H.R. 1843. These sections allow the District to use an annually collected tax to finance the land acquisition and other background work for the sports arena project. Once these steps are taken, the sports arena can be built.

Both of these projects are being financed by District and private resources, and will bring significant revenue into the District's shrinking coffers. Additionally, both projects will bring additional and much needed jobs to District

residents, both while the projects are in development and during the future operations of these facilities.

I am pleased to be joined in cosponsorship and support of this bill by so many of my colleagues on both sides of the aisle. I hope we can work together for speedy passage of this bill.

**IMPORTANT FINDINGS ON VISION  
IMPAIRMENT AMONG OLDER  
AMERICANS**

**HON. CAROLYN B. MALONEY**

OF NEW YORK

IN THE HOUSE OF REPRESENTATIVES

*Tuesday, July 25, 1995*

Mrs. MALONEY. Mr. Speaker, I rise today to bring to the attention of my colleagues new findings on a problem that affects millions of middle-aged and older Americans: impaired vision.

Recently, The Lighthouse, Inc.—a vision rehabilitation organization—commissioned a poll on vision loss which was conducted by Louis Harris and Associates. As part of this comprehensive study, over 1,200 Americans 45 or older were interviewed to determine the prevalence and severity of impaired vision. The results of the survey are stunning. Approximately one in six Americans 45 years of age or older report that he or she experiences moderately or severely impaired vision. Many suffer even while wearing corrective glasses or contact lenses. For adults 75 years or older, the number is even more startling: one in four have vision difficulties. When applied to the entire Nation, the survey shows that 13.5 million Americans aged 45 or older suffer some degree of vision impairment.

One of the most disturbing aspects of this problem is the lack of public awareness about treatment options and facilities. Thirty-five percent of Americans surveyed were found to be unaware of local services for people with impaired vision. Also, while 89 percent of those surveyed think health insurance for vision impairment is somewhat or very important, only 75 percent are covered for severe vision impairment.

While many people suffering from vision impairment realize there are a variety of options to help correct vision loss—optical devices, adaptive aids, and rehabilitation—the Lighthouse survey shows that all of these options are under-utilized. Clearly, in combating vision impairment, one of our first targets must be to wipe out widespread ignorance about a problem that afflicts one in six Americans.

Mr. Speaker, as the Lighthouse study shows, we must take steps to guarantee that Americans can see with clarity. Such steps will improve the health, productivity and quality of life for millions of Americans. I ask my colleagues to join me in saluting the efforts of the Lighthouse, Inc. and to urge further action on this important topic.

VISITOR SERVICES IMPROVEMENT  
AND OUTDOOR LEGACY ACT OF  
1995**HON. JAMES V. HANSEN**

OF UTAH

IN THE HOUSE OF REPRESENTATIVES

*Tuesday, July 25, 1995*

Mr. HANSEN. Mr. Speaker, today I am introducing legislation to improve the recreation experience on our Federal lands. Currently, funding to support recreational use of Federal lands is declining at the same time that recreational use is increasing. The staffing of the Federal land management agencies is inadequate and facilities, many of which are undersized, are deteriorating beyond the point where cost-effective repairs can be undertaken.

Some have urged that we simply appropriate more money for these purposes. However, in this time of deficient reduction, no one is approaching me volunteering programs with surplus funds. We must find ways to spend existing funds more wisely and to generate more funds within the programs themselves. The bill I am introducing today moves a long way in that direction.

Recreational use of Federal lands is one of the best deals in America today. It is such a good deal because 90 percent of the costs of services provided to recreational users are paid by persons who don't use the Federal lands. In recent years, recreational use on Federal lands has been subsidized by nearly \$1 billion annually. However, if we could develop a way for recreational users of Federal lands to pay just \$1 per person for their recreational use, Federal recreation programs would be self-sufficient.

The current Federal recreation fee program, as codified in section 4 of the Land and Water Conservation Fund Act, is in need of a complete overhaul. There are three major problems with the existing law: First, inadequate cost recovery, second, lack of incentives for fee collection, and third, complex and often conflicting policies as a result of past congressional micromanagement of this program.

The legislation I am introducing today reflects a total revision of the existing law. Under my legislation, recreation user will be required to pay 75 percent of the annual costs of services provided to them. However, this legislation is not just a fee offset bill. It provides for Congress to pay for not only the balance of the annual operating costs, but to provide funds for recreation facility construction and rehabilitation as well. As visitation goes up, so will fees and ultimately overall program funding. This legislation is designed to reverse the current trend of decreasing appropriations for visitor services.

One of the key features of this legislation, and of any successful fee program, is providing program incentives. By permitting the agencies to retain all funds without further appropriation, my legislation provides substantial incentives for both the public and the agencies administering the program. Further, most of the funds would be kept right in the area they are collected, with some allowance made for areas which cannot collect adequate recreational fees.

Other important features of this bill include the following: First, developing a consistent recreation fee policy for the 5 primary Federal land management agencies; second, providing flexibility in the amount of fees charged, but ensuring that fees collected are fair; third, limiting recreational fees to developed recreation sites and other specific recreational services provided by the federal agencies; fourth, ensuring congressional oversight of rates charged; fifth, permitting the use of volunteers to collect fees; sixth, ensuring accountability of fees collected; seventh, prohibiting fees for Federal hunting and fishing licenses; and eighth, guaranteeing access to private property without requiring the payment of any fee.

Taken together, these reforms will fundamentally change the manner in which the fee programs on Federal lands currently operate. These are changes which will work to the benefit of all recreational users of Federal lands. I look forward to working with my colleagues on this legislation, I welcome their input, and that of the public who uses our Federal lands.

## PERSONAL EXPLANATION

**HON. ANDREA H. SEASTRAND**

OF CALIFORNIA

IN THE HOUSE OF REPRESENTATIVES

*Tuesday, July 25, 1995*

Mrs. SEASTRAND. Mr. Speaker, on rollcall Nos. 552 through 557 I was unavoidably detained due to district travel plans and therefore unable to vote.

Had I been present I would have voted "no" on rollcalls 552, 555, and 556 and "yes" on rollcalls 553, 554, and 557.

THE EMPLOYMENT OF U.S. CITIZENS  
IN THE UNITED NATIONS  
SYSTEM**HON. LEE H. HAMILTON**

OF INDIANA

IN THE HOUSE OF REPRESENTATIVES

*Tuesday, July 25, 1995*

Mr. HAMILTON. Mr. Speaker, it has come to my attention that U.S. citizens are allocated approximately 15 percent of U.N. posts, despite the fact that U.S. assessed contributions amount to 25 percent of the organization's regular budget. The geographic distribution formula for U.N. employees, which includes population and membership as well as contributions, does not appear to reflect the disproportionate responsibilities born by the United States within the U.N. system. A separate concern is that the U.N. Secretariat consistently fails to meet even this relatively low employment allocation; only 10 percent of all U.N. employees are U.S. citizens.

I believe this is a serious problem that deserves high-level consideration. My reservations about U.N. employment policies are outlined in a letter I sent recently to the Department of State. I ask that my letter, and the Department's response, be included in the CONGRESSIONAL RECORD.

COMMITTEE ON  
INTERNATIONAL RELATIONS,  
Washington, DC, June 16, 1995.Hon. WARREN CHRISTOPHER,  
Secretary of State,  
Department of State,  
Washington, DC.

DEAR MR. SECRETARY: I write to inquire what steps the Administration has taken to increase the employment of U.S. citizens in the United Nations system.

My inquiry is prompted by the most recent report to Congress on this subject, as required by section 181 of P.L. 102-138, which was submitted on June 2.

My reading of the report indicates the following:

(1) The United States accepts the U.N. Secretariat's ability to exclude large numbers of U.N. positions from the application of the principle of equitable geographic distribution; and

(2) The United States accepts a geographic distribution formula for U.N. employees which allocates the United States roughly 15% of U.N. posts, even though the United States contributes 25% of the U.N. regular budget and about 30% of U.N. peacekeeping costs.

I would appreciate a clarification of whether these statements reflect U.S. policy, and if so, the date these policies were adopted, and why.

I am concerned that even this relatively low allocation is barely met in the U.N. Secretariat, and is not being met in eight of the nine U.N. agencies on which the report focuses. As a whole, the report states that only 10% of all U.N. employees are U.S. citizens, a level which has not increased significantly over time.

I find it difficult to believe that there are insufficiently qualified U.S. applicants for available U.N. posts, particularly in the area of humanitarian relief and aviation expertise where large numbers of U.S. citizens have unique skills and are seeking employment.

I would therefore appreciate an answer to the following questions:

(1) What are the principal obstacles to increase hiring of U.S. citizens in the U.N. system? Do these obstacles vary by agency?

(2) Is a registry kept of U.S. citizens interested in and qualified for U.N. posts which are advertised?

(3) What office within the State Department is responsible for assisting U.S. citizens seeking employment at the United Nations, and how many personnel does that office have?

(4) What specific steps has the Department taken, both with the Secretariat and with other U.N. agencies, to address the underrepresentation of U.S. citizens?

I understand that equitable geographic distribution of U.N. posts is one among several principles guiding decisions on U.N. employment, the foremost of which I hope would be competence. I am puzzled nonetheless that U.S. representation remains so persistently low within the U.N. system.

I would appreciate any information you could supply, and stand ready to work with you to address this imbalance.

With best regards,

Sincerely,

LEE H. HAMILTON,  
Ranking Democratic Member.

U.S. DEPARTMENT OF STATE,  
Washington, DC, July 19, 1995.

DEAR MR. HAMILTON: This is in response to your letter of June 16 to Secretary of State

Christopher inquiring about the steps the Administration has taken to increase the employment of U.S. citizens in the United Nations system. As you are aware, the Secretary of State is responsible for leading and coordinating the U.S. Government's efforts to ensure that the staffs of UN agencies and other international organizations include an equitable number of Americans in professional positions.

In your letter, you asked for information regarding the United Nations Secretariat's geographic distribution formula, and clarification of U.S. policy regarding the application of this formula. Prior to 1962, the UN's geographic distribution system for professional staff was based simply, and informally, on member states' contributions to the regular budget. The UN first debated the geographic distribution issue during the General Assembly's seventeenth session in 1962.

In this debate, the United States proposed a resolution calling on the Secretary General to consider giving weight to the factors of population and membership, as well as the financial contributions of states, and to consider widening the categories of Secretariat staff subject to geographical distribution. The formula eventually approved called for 60% of the posts to be filled on the basis of member states' assessed contributions, and the remaining 40% to be filled based on their population and membership. The GA also recognized that not all professional posts should be included within the geographic distribution formula. These included posts with special technical and language requirements, national restrictions, and all General Service (administrative) positions.

The formula in place today maintains the same three weighted factors: contributions, population and membership. Over the years, the weight given to contributions has decreased slightly, from 60% in 1962 to the current 55%. Therefore, even though the United States may contribute 25% to most UN agencies, the desirable ranges of U.S. professional representation in these agencies average between 15% to 18%. Other major contributors to the UN have similarly proportional ranges.

Following are our responses to your other four questions.

1. What are the principal obstacles to increased hiring of U.S. citizens in the UN system? Do these obstacles vary by agency?

The historical under-representation of Americans in many of the UN agencies is due to a number of factors, including stiff competition from nationals of other member countries, the lack of foreign language skills by some American candidates, and our lack of participation at most UN agencies in Junior Professional Officer (JPO) programs which encourage promotion from within. In addition, some Americans are deterred from considering such positions because of the high cost of living in many UN cities, the lack of employment opportunities overseas for spouses, and other family and career considerations. It is for these reasons that Americans tend to be better represented in many of the New York offices of the UN Secretariat, and at the New York headquarters offices of UNICEF and UNDP, and less well represented at, for example, UNHCR in Geneva, and FAO in Rome.

As a result of U.S. Government and the UN agencies' own vacancy dissemination and recruitment efforts, we know that large numbers of U.S. citizens receive timely information about UN employment opportunities and that many apply for these positions. UN

agencies have confirmed that for most positions, they receive ample numbers of applications from highly qualified U.S. citizens.

2. Is a registry kept of U.S. citizens interested in and qualified for UN posts which are advertised?

Our Bureau for International Organization Affairs (IO) maintains a roster (registry) of U.S. citizens qualified for senior (D-level and above) positions in UN agencies and other international organizations. We also disseminate vacancy announcement information on all professional posts.

3. What office within the Department is responsible for assisting U.S. citizens seeking employment at the United Nations, and how many personnel does that office have?

Within IO, the UN Employment Information and Assistance Unit (IO/SEA) is responsible for assisting U.S. citizens seeking information about international employment opportunities and for holding UN agencies accountable for hiring a fair share of Americans. This office consists of three staff members.

In addition, Ambassador Albright, the U.S. Permanent Representative to the United Nations at our Mission in New York, and our Permanent Representatives at our other missions overseas are fully committed to assisting U.S. citizens regarding employment opportunities within the UN system, and to holding UN agencies accountable for reaching established U.S. representation levels.

4. What steps has the Department taken, both with the Secretariat and other UN agencies, to address the under-representation of U.S. citizens?

The Department regularly consults with UN agencies (and other international organizations) to review their hiring of Americans. IO/SEA assists these agencies by collecting and disseminating vacancy information. The office prepares a bi-weekly list of vacancies and distributes the list to hundreds of sources: Federal agencies, public and private organizations, academic institutions, associations, and individuals. The office assists interested Americans in working their way through the UN employment and application procedures and encourages qualified candidates to apply directly to the organizations for professional (P-level) positions. The office also is the focal point for information regarding the detail and transfer of Federal employees to international organizations.

IO/SEA works closely with other Federal agencies and encourages them to draw on their own professional networks to recruit and submit qualified candidates to UN agencies. Working with other Federal officials, it is the Department's policy to submit a slate of three or more highly qualified candidates for each announced senior-level vacancy. In the past few years, the office has increased its efforts to identify and recruit women for these senior positions, with some success.

We continually advise the UN agencies that while the U.S. Government is prepared to offer assistance, it remains their responsibility to take whatever steps are necessary to hire and maintain adequate numbers of U.S. citizens on their professional and senior staffs.

I hope this information addresses the questions you asked. We certainly appreciate your continued interest in UN activities and willingness to work with us to improve U.S. representation in the UN system.

Sincerely,

WENDY R. SHERMAN,  
Assistant Secretary, Legislative Affairs.

REPUBLIC OF KOREA PRESIDENT  
KIM YOUNG SAM'S ACCOMPLISHMENTS IN OFFICE

HON. GERALD B.H. SOLOMON

OF NEW YORK

IN THE HOUSE OF REPRESENTATIVES

Tuesday, July 25, 1995

Mr. SOLOMON. Mr. Speaker, Republic of Korea President Kim Young Sam's state visit to the United States on July 25-28 is especially noteworthy because South Korea is one of America's most important and trusted allies in East Asia. Today, Korea shares many of the basic ideals and institutions that America cherishes. Most importantly, it shares America's commitment to democracy and a free market economy. However, many Americans are not fully aware of the great strides that South Korea has made regarding the institutionalization of democracy and the opening of its markets to foreign investment. The Republic of Korea's leader, President Kim Young Sam, who is the first civilian Chief Executive in 32 years, has played a crucial role in the country's democratic political development and economic liberalization.

During his first 2 years in office, Republic of Korea President Kim Young Sam has implemented a bold reform agenda that places a high priority on continuing Korea's democratization, establishing high ethical standards for political officials, renewing economic growth, and internationalizing all aspects of Korean society.

To successfully address the challenges of the post-cold-war era, President Kim has made Segyehwa—(globalization)—Korea's foremost national goal. The globalization initiative calls for significant reforms in six broad areas. These areas include: improving the efficiency of the government; implementing full-fledged local autonomy; sharpening Korea's competitive edge; improving the quality of life for the Korean people, especially the underprivileged; achieving progress toward reconciliation and cooperation with North Korea; and finally, globalizing Korea's diplomacy.

Early in his term, President Kim pledged to create a corruption-free political environment by instituting a strong moral code of conduct for the members of his administration and political party. Leading by example, just 2 days after his inauguration, President Kim disclosed all of his property and financial assets to the public and encouraged all his senior cabinet and ruling party figures to do the same. In order to institutionalize high moral standards for public officials, President Kim backed on ethics bill passed by Korea's national legislature in May 1993. The legislation requires thousands of senior civil servants to make regular and full financial disclosures to the public. Last year, the President also supported a sweeping election reform bill that limits campaign spending.

President Kim believes that the decentralization of political power through the promotion of local autonomy is critical to the institutionalization of democratic political reform. To that end, on June 27, local government officials, including provincial governors, metropolitan mayors, and councilmen, were chosen by popular vote for the first time in more than three decades.

Another important component of the President Kim's anticorruption campaign was the introduction last year of a real-name financial and real estate transactions system. Under this reform, every transaction with a financial institution must be made under an individual's real name, thereby eliminating tax evasion, real estate speculation, and government-business collusion.

The deregulation and liberalization of Korea's economy has also been a major priority of President Kim. To facilitate foreign access to the Korean market and help attract foreign technology, the President has introduced a number of measures that over the next few years will eliminate virtually all restrictions on foreign investment in Korea. For example, under President Kim's liberalization program, 91 percent of business lines are open to foreigners, and that figure will increase to 95 percent within 3 years. Moreover, the streamlining of the foreign investment approval process has reduced the time required for the final approval on projects from 50 to 5 days. To further demonstrate its commitment to free trade, the Kim administration supported legislation passed by the National Assembly last year that approved Korea's entry into the World Trade Organization.

As a result of these efforts, direct foreign investment in Korea last year totaled \$1.3 billion, up more than 25 percent from 1993. In addition, American firms have benefited from these liberalization initiatives as Korea has grown to be the United States' sixth largest export market, and fourth largest market for agricultural goods. Our countries' two-way trade now surpasses \$42 billion. Furthermore, Korea is one of only a handful of countries having a deficit with the United States. Last year alone, Korean imports of American products grew 22 percent. During the first 4 months of this year, America's trade surplus with Korea was \$2.4 billion. This contrasts with the substantial deficits the United States is running with several of our East Asian trading partners. It also illustrates Korea's strong commitment to trade liberalization and deregulation.

In addition to these domestic accomplishments, President Kim has also implemented a new foreign policy agenda that emphasizes the principles of democracy, liberty, human rights and free market economy. The Korean leader believes that the institutionalization of these core values is crucial to long-term political stability and economic prosperity in the Asian region and throughout the world.

President Kim has promoted these ideals through summit talks with the leaders of major world powers, including the United States, China, Japan, Russia, Germany, France, and Great Britain, as well as through discussions with the new leadership of many of the former socialist nations of Eastern Europe and the newly industrialized countries in Latin America and Asia. President Kim has also worked hard to transform the Korea-United States bilateral relationship into a broader political, economic, and security partnership.

While maintaining close ties with traditional friends, the Korean leader has also focused on expanding regional economic cooperation and liberalization with Korea's Asian neighbors. To expedite this process, President Kim

met with his counterparts from the region at the first two meetings of the Asia-Pacific Economic Cooperation [APEC] Leaders' Conference. In a major address at last year's gathering of the group in Indonesia, he outlined his proposal for new regional initiatives in the areas of trade and investment liberalization, manpower development, and telecommunications infrastructure. President Kim emphasized that it was imperative for APEC to take a leading role in liberalizing world trade and that the highest priority should be given to dismantling all barriers to trade and investment.

President Kim's foreign policy agenda has also included efforts to increase Korea's manpower and financial contributions to such pressing international issues as arms control, the abolition of poverty, and environmental protection through membership in various U.N. organizations and other multinational bodies.

One of President Kim's major policy goals has also been the improvement of relations with North Korea. Through close consultations with the United States and other major allies, and the United Nations, the ROK Government has pressed the North to comply with its obligation as a signatory to the Nuclear Non-Proliferation Treaty of 1992 to accept external scrutiny of its nuclear weapons program.

The success of this effort was highlighted on October 21, 1994, in Geneva when the United States and North Korea signed the agreed framework. It requires North Korea to dismantle its nuclear program over the next 10 years and accept full-scope international inspections of all its nuclear facilities in exchange for two 1,000 megawatt light-water nuclear reactors [LWR's]. To promote inter-Korean cooperation, the Republic of Korea will play a central role in the \$4.5 billion LWR project.

In an effort to promote improved South-North relations, on June 21, the ROK Government announced that South and North Korea had reached an agreement in which the South will supply the North with 150,000 tons of rice for free. The food aid will be provided to the North in order to help alleviate the critical food shortage in North Korea. President Kim hopes that this measure, along with his previous efforts to gradually lift restrictions on South Korean business investment and trade with the North, will serve as an impetus for improved South-North political relations and thereby help lay a foundation for the peaceful reunification of the Korean Peninsula.

Mr. Speaker, I believe that all Members of Congress will find this record of achievement impressive, and will want to welcome President Kim when he arrives to address a joint meeting of Congress on July 26.

#### MEDICARE'S 30TH ANNIVERSARY

**HON. SHEILA JACKSON-LEE**

OF TEXAS

IN THE HOUSE OF REPRESENTATIVES

*Tuesday, July 25, 1995*

Ms. JACKSON-LEE. Mr. Speaker, the Medicare Program is a critical safety net for millions of seniors and disabled Americans. And as we celebrate the 30th anniversary of the

Medicare Program this week, there is an important statistic to keep in mind: 99.1% of Americans over age 65 have health insurance coverage.

We must remember that it has not always been this way. The period that preceded the implementation of the Medicare Program is a tragic chapter in our Nation's history—elderly citizens unable to receive or pay for medical care—choosing between medicine and food—people fearing to reach what should be their golden years.

During this week of reflection on the Medicare Program, let us not forget that it was the tireless advocacy of the Democratic Party that transferred the Medicare Program from theory to reality.

The historical record is unmistakably clear: if it had been up to the Republican Party, the Medicare Program would never have been enacted. For example, in 1965, the year Medicare was created, 93 percent of House Republicans voted to replace the proposed Medicare Program with a Republican substitute—which was a voluntary plan, with no guaranteed financing and no guaranteed benefits.

Thirty years later, the Medicare Program is still facing Republican assaults. Now, they want to cut the program by \$270 billion to pay for tax cuts for the wealthy. Unfortunately, my Republican colleagues are not in tune with the desires of the American people.

Polling conducted in early June by NBC/Wall Street Journal show a public concerned with Republican priorities. When asked to identify their top goals for Congress, most voters chose protecting Medicare and making sure the wealthy pay their fair share of taxes as top issues.

Instead, the GOP has chosen a variety of ways to pay for tax cuts for the wealthy by increasing medical costs for seniors. The Republican budget task force outlined several options for cutting Medicare. The following are a sample of these options:

Increase premium for new beneficiaries who use Medicare fee-for-service. Beginning in 1999, all new enrollees choosing Medicare fee-for-service would pay a \$20 increase to their part B premium.

Increase Medicare deductible. The part B Medicare deductible for senior citizens is \$100. Republicans want to increase it to \$150 by 1996.

Start charging a co-payment for clinical laboratory and home health services. Senior citizens are covered by Medicare for these services, but Republicans propose to require senior citizens to pay a 20 percent co-payment for lab and home health services, by 1999.

Increase part B premium \$5 per month for 1996–99 and \$7 per month beginning in 2000. In 1995, senior citizens pay \$46.10 per month. By the year 2002, the Republicans will force seniors to pay an increase of up to \$87.10 per month. This is equal to a \$492 increase per year to senior citizens by the year 2002. In the year 1996, seniors will see their premium increase by \$60.

All of these cost increases to senior citizens do not even affect the part A funding that the Republicans claim will go insolvent. Instead, the Republicans are going to hit seniors, who are living on small fixed incomes, with all of these increases so that the wealthy can have their tax cuts.

If the Republicans are legitimately concerned about the solvency of the Medicare Program, why are their budget proposals not addressing these questions?

In calendar year 1994, hospital insurance [HI], or part A, covered about 32 million seniors and 4 million disabled enrollees at a cost of \$104.5 billion. The payroll taxes of 141 million workers used to support these costs amounted to \$95.3 billion.

Obviously, these numbers do not match up. And as the number of beneficiaries increases, these numbers will continue to move further and further apart—which is exactly the reason why the Medicare trustees report showed that the hospital insurance program fails the test of short-range financial adequacy.

Do these problems need to be addressed? Absolutely. Are the Republicans addressing such problems? Absolutely not. If anything, their budgetary proposals only worsen the situation and are nothing more than smoke and mirror gimmicks to justify tax breaks for the wealthy.

My chief concern today is the moral bankruptcy of those who would do the bidding of the powerful while cutting Medicare and turning their backs on the interests of the weak. If we launch this assault on benefits to the elderly, where will it stop?

#### CONGRATULATIONS TO THE OWENS FAMILY OF FREDERIC, WI

**HON. DAVID R. OBEY**

OF WISCONSIN

IN THE HOUSE OF REPRESENTATIVES

*Tuesday, July 25, 1995*

Mr. OBEY. Mr. Speaker, I'd like to take this opportunity to congratulate the Owens Family of Frederic, WI, operators of Owens Farms, Inc., one of five Wisconsin families selected as regional winners in the 1995 Dairy Farm Family of the Year Program.

The Owens Farm involves 10 family members: Wilfred and Linda Owens, Walter and Joyce Owens, and Roger and Kim Owens; the brothers' parents, Harold and Agnes Owens; and grandsons, Stevens and Douglas Owens. Together they milk 312 Jersey cows on their farm which is located in Polk and Burnett Counties in northwestern Wisconsin.

Despite dairy prices that have remained around \$12 per hundredweight for more than 10 years, the Owens farm has found ways to remain profitable through the adoption of more efficient machinery and better management.

In addition to their hard work on the farm, the family has been active off the farm, with the local 4-H Club, local churches, dairy organizations, and other community organizations.

The Owens family has been recognized by the University of Wisconsin Centers for Dairy Profitability based on their farm business performance, dairy industry and community leadership, management systems, and business innovations. The Owens farm has proven itself a well-managed, progressive, and profitable business.

The Owens family, along with the other regional winners from Wisconsin, will be recognized at a banquet in Madison, WI, on July 27. To all the winning families, and especially to

the Owens family, I want to extend my congratulations.

#### COMMENDING EIGHTH GRADE HISTORY TEACHER CARLYJANE WATSON

**HON. DAVE WELDON**

OF FLORIDA

IN THE HOUSE OF REPRESENTATIVES

*Tuesday, July 25, 1995*

Mr. WELDON of Florida. Mr. Speaker, I rise today to commend history teacher Carlyjane Watson and her eighth grade class at Bourne High School in Bourne, MA. They marked the 50th anniversary of the end of World War II in a most creative and informative way.

The class held a "Living History Forum" where each of the students contacted relatives and neighbors who had served during World War II to learn about their firsthand experiences. This was an innovative way to introduce the students to the wealth of historical knowledge found in their own community.

This program was a fitting tribute to all Americans who made great sacrifices during World War II. It also allowed students to get a lesson in history directly from those who made it. This "Living History Forum" allowed the students to gain a better understanding of both the factors that lead to the war and the immense courage of those who experience it. This is sure to leave a lasting impression on both the students and those who shared their experiences. It is a fitting tribute to those who sacrificed so that we might continue to live free. Mrs. Watson is to be commended for her innovative way of making history come alive for all of those involved.

#### REPRESENTATIVE MEEK HONORS GERALINE L. GILYARD- INGRAHAM FOR 31 YEARS OF OUTSTANDING SERVICE TO DADE COUNTY SCHOOLS

**HON. CARRIE P. MEEK**

OF FLORIDA

IN THE HOUSE OF REPRESENTATIVES

*Tuesday, July 25, 1995*

Mrs. MEEK. Mr. Speaker, I want to offer my sincere congratulations to Dr. GERALINE LEWIS GILYARD, who is retiring after over 30 years as an educator. Clearly, the Dade County Public School system is losing one of its finest employees.

A native Miamian, Dr. Gilyard attended Dunbar Elementary and Booker T. Washington Junior Senior High School in Dade County. Dr. Gilyard's academic background was exemplary. She earned a bachelor's degree in business education from Bethune Cookman College, a master's degree in guidance and counseling from Florida Atlantic University, a doctoral degree in education from the University of Palm Beach, and a second doctorate from the University of Miami in administration and supervision. She received extensive additional training in group process and organizational development from Boston University's Human Relations Laboratory and Bethel Maine's National Training Laboratory.

Dr. Gilyard put her education and training to work in Madison County, FL. Fortunately for Miami, however, she moved to the Dade County Public School System a year later. Dr. GERALINE LEWIS GILYARD taught at Ojus and Douglass Elementary Schools, was a guidance counselor at North Dade Jr. High School, a member of the Human Relations Intergroup Relations Team, a teacher interviewer, the director of Administrative Services, the supervisor of noninstructional training, and she will retire as the director of instructional staffing. In all, Dr. Gilyard spent 32 years as an educator, 31 of them working for the betterment of the youngsters in Dade County.

Dr. Gilyard has also been extremely active in our community. She is a founding member of the Southeast Chapter of the Negro Business and Professional Women's Club. She is a member of Ebenezer United Methodist Church, where she served as chairperson of the administrative board for 4 years. She is currently the chairperson of the Council on Ministries, a member of the United Methodist Women, and involved in the Voices of Praise Choir. Dr. Gilyard is also a member of the District Superintendent Advisory Council of the Miami District of the United Methodist Church. She is a member of the Gamma Zeta Omega Chapter of Alpha Kappa Alpha Sorority, where she served as chairperson of the Ebony Fashion Fair Committee for 3 years.

Dr. Gilyard resides in Dania, FL, with her husband, Arlington Ingraham, owner of the Bahamian Connection restaurant, and her daughter, Vanessa Henelle Gilyard, a graduate of Barry University. Mr. Speaker, on behalf of our entire community and as a former teacher, I offer her profound thanks for her many years of service and our best wishes for her continued happiness and success in the future.

#### HAPPY 100TH THUMB NATIONAL BANK & TRUST

**HON. JAMES A. BARCIA**

OF MICHIGAN

IN THE HOUSE OF REPRESENTATIVES

*Tuesday, July 25, 1995*

Mr. BARCIA. Mr. Speaker, there is no doubt that one of the most important relationships people can have in their lifetimes is the one with a good, stable bank. We depend upon banks to hold our savings, to help finance our homes and cars, and to provide some additional resources at times of emergencies or special opportunities. The people of Michigan's Thumb—a multicounty area in my congressional district—have had the good fortune of dealing with the Thumb National Bank & Trust Co. which this Thursday celebrates its 100th anniversary.

Thumb National started as the Farmer's Bank, in Pigeon, MI, in 1895, with five customers and total deposits of \$1,900. In 1908, it bought out the Pigeon State Bank, and assumed that name. It grew through the years, undergoing several building projects, growing as the surrounding community grew, becoming Pigeon's longest continually operated business. The bank plans to add 50 percent more space to deal with the growing demand for its services.



Twenty-five years ago, the Pigeon State Bank changed its State charter to a national bank charter, and became the Thumb National Bank & Trust Co. It was the only bank in the entire area to offer full trust services. Now, with several branches, automated teller machines, and a complete array of current financial services, its customers are fortunate to continue to be served by a bank that truly believes in its philosophy of know the customer.

To its good fortune, Thumb National, has had the consistency of a limited number of chief executive officers, including three generations of the Clabuesch family, including the current president, Paul Clabuesch. Working with chairman of the board Arthur Luedtke, and other board members Nelson Binder, Ann Marie Clabuesch, Clare Comment, Eldon Diefzel, Lowell Kraft, David McCormick, Curtis Strickland, and Robert Webber, Sr., the bank continues to set an example of success and frugality for the Thumb. It also continues to be involved in a number of community projects, just as it was over 20 years ago when it provided financing to build Scheurer Hospital, after State and Federal officials said no funding was available.

Mr. Speaker, certain institutions are vital to the success of our communities. Thumb National Bank & Trust Co. has certainly been such an institution for the several counties of the Thumb. I urge you and all of our colleagues to join me in wishing the officials, the 54 employees, and the thousands of depositors, a very happy 100th anniversary with a positive outlook for 100 more years of careful, innovative, and successful banking.

#### HONORING JUDGE THOMAS TANG

#### HON. ED PASTOR

OF ARIZONA

IN THE HOUSE OF REPRESENTATIVES

Tuesday, July 25, 1995

Mr. PASTOR. Mr. Speaker, I am saddened today by the recent death of a good personal friend and a friend of the community, Judge Thomas Tang.

Born January 11, 1922, in Phoenix, AZ, the son of Chinese immigrants, Judge Tang served in World War II as a second lieutenant. He graduated from the University of Santa Clara, CA, and received his law degree from the University of Arizona in 1950.

He enjoyed a long career in Government and law until being appointed to the Federal bench by President Carter in 1977. In a legal career spanning almost five decades, he served as a Phoenix City Council member, Maricopa County Superior Court Judge, Deputy County Attorney and Assistant Arizona Attorney General. Judge Tang's career also included years of private practice where he served on the Arizona State Bar Board of Governors until becoming its president in 1977.

Known as an even-tempered and affable individual, he will best be remembered for his commitment to justice and fairness. A champion of individual rights, he was devoted to the advancement of minorities in the legal profession.

Additionally, I would like to recognize Judge Tang's wife, Pearl Tang. A respected and well-known community activist, she has served as an advocate for the well-being of mothers and children in Arizona. I had the pleasure of working with her during my years as a Maricopa County Supervisor and treasure her friendship. I ask you to join her and my fellow Arizonans in sharing the loss of a great and noble man.