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ABSTRACT

This paper explores the power of the group to influence the initiation, maintenance, and termination of a given episode of group drinking by alcoholics. The study was undertaken to establish the parameters, within a controlled laboratory setting, of the various effects of group decision making on the social, affective, and drinking behavior of the members of that group. The subjects in this research were four white males who had been "therapeutic failures" in New Jersey State Facilities. Data were gathered by (1) consumption measures; (2) observational and self-reporting instruments; and (3) physical and physiological measures. Because the subjects' drinking behavior was altered significantly both by a differential reinforcement and by decision-making, the authors conclude that: (1) social influence was a powerful determinant of alcohol consumption; (2) social and economic controls did alter the subjects' behavior after they started drinking; and (3) treatment implications emerge indicating that total abstinence from alcohol might not be as effective as therapeutically modulated, controlled drinking. (Author/SES)

To Drink or Not to Drink An Experimental Analysis of the Effects of Group Decision - Making on Group Drinking by Alcoholics[1]

Mark S. Goldman, H.Augustus Taylor, Mary L. Carruth and Peter E. Nathan[2]

The present research had two major aims: (1) Exploration of the power of the group to influence the initiation, maintenance and termination of a given episode of group drinking by alcoholics; and (2) the elaboration of changes in patterns of social influence within the group that occur over a period of prolonged alcohol ingestion. The present paper is primarily concerned with the first of these aims.

Although most research involving the experimental induction of drinking by alcoholics has focused on basic parameters of the drinking itself, the results of some of this work have also yielded data on social factors associated with such drinking. These findings have included the following: (1) Decreases in social interaction have been shown by Mendelson, DaDou and Solomon (1) and by Nathan, O'Brien and Lowenstein (2) to occur among alcoholics during prolonged drinking episodes. (2) While Skid Row alcoholics become more isolated interpersonally during prolonged drinking, nonalcoholic Skid Row residents become much more involved socially in the same situation (3) (3) Despite these findings, the drinking behavior of alcoholics does seem to vary, in the small-group setting, as a function of the drinking behavior of the other alcoholics in the group (4). In part because of the obvious importance of these initially "secondary" findings, later work by these investigators (2, 3, 4) has focused more directly on the effects of social influence on drinking by alcoholics. To this end, recent laboratory research has focused on interactions

between an alcoholic father and an alcoholic son, and between two pairs of alcoholic mothers, before, during and after periods of experimental drinking (5,6); on the social behavior of a simulated "bottle gang" during 30 days of drinking (7); and on the effects of stress on group process, mood and drinking behavior in a group of four alcoholics (8).

The present study was designed to examine the social and individual behavior of four alcoholics, living together in a laboratory environment, whose drinking and smoking behavior were at certain times dependent on group decisions and, at other, a function only of individual decision-making. The study was undertaken to establish the parameters, within a controlled laboratory setting, of the various effects of group decision-making on the social, affective and drinking behavior of the members of that group. The relevance of this study to efforts to understand (and, potentially, alter) the behavior of groups of Skid Row alcoholics in vivo "bottle gangs" seemed clear. The fact that the decision-making which was permitted the subjects forced them to choose between relatively modest immediate reinforcement and potentially great longer-term reinforcement promised to extend this relevance beyond the usual limits of alcoholism research.

METHODS

Subjects and setting

Allman, Taylor and Nathan (8) have described in detail the Alcohol Behavior Research Laboratory and its standard criteria for subject selection. The subjects in the present study were four white men, "gamma" - type alcoholics (9), all "therapeutic failures recruited from New Jersey

State facilities.

Subject 1, a short-order cook with 6 years of education, was 41 years old, divorced, with a history of alcoholism since age 21; he last drank 14 days before the study. Subject 2, a baker with 9 years of education, was aged 37, separated, and had been an alcoholic since age 22; he last drank 14 days before the study. Subject 3, a mechanic with 14 years of education, aged 35, was single and an alcoholic since age 17; he last drank 19 days before the study. Subject 4, a carpenter with 12 years of education,aged 51, was divorced and had been an alcoholic since age 16; he last drank 14 days before the study. Subject A had experienced blackouts and tremors during episodes of alcohol withdrawal, and Subjects B, C and D, delirium tremens.

Figure 1 shows the subject area of the laboratory, comprised of four individual bedrooms, a dayroom, and a bar area and bathroom. The bar was "tended" by a male research assistant between 6:10 and 10:10 each evening. During drinking periods, computer-controlled equipment dispensed 30-cc "shots" of blended whisky (49% alcohol) either at the bar or in the bedrooms. Blood alcohol levels (BAC) were monitored with a Breathalyzer[3]. Subjects were at no time permitted to drink to a BAC above 260 mg/per 100ml.

Procedure

Experimental days began at 7:10am and, except for the brief Initiation period described below, were structured into eight decision intervals of 130 minutes. Each interval began with a 10-min. decision period, during which the subjects met as a group. At this time, they received feedback on their performance during the last interval, filled out mood measurement scales, were informed whether the coming interval required an indivi-

dual or a group decision, and then were left for 5 min. to work out their consumption decision. They then indicated their decision, filled out further questionnaire items, and then were left alone for the remaining 2 hours of the decision interval, while their consumption was carefully monitored. Three of the eight daily decisions were randomly assigned as individual decisions, at which each subject set his own consumption level for the next 2 hr; the remainder were group decisions, at which all four subjects were required to negotiate a common consumption level. Reinforcement points, required for purchasing drinks, cigarettes, and socialization, were earned according to the schedules summarized in Chart 1. Points were awarded to each subject only if he did not violate his own individual decision or if none of the subjects violated a group decision.

Chart 2 summarizes the over-all design of the study. The major variables incorporated are as follows: (1) Decisions as to the consumption of cigarettes or alcohol. Cigarette decisions were made during the Predrinking and Postdrinking periods in order to provide data on group process during sobriety before and after a drinking episode. Cigarette decisions were also made during the Ad-lib. drinking period so as to vary the daily routine as little as possible from the Maintenance drinking periods. (2) Each of the major phases of the study, excepting Initiation and Termination, was divided into periods of Socialization, during which free access to all ward areas was permitted, and Isolation, during which subjects were charged 10 points for each 15 min spent outside their rooms. Isolation periods provided a measure of the subjects' willingness to socialize and, additionally, provided for assessment of the importance of face-to-face contact in adhering to group decisions.

During the open-ended Initiation phase, group decisions were made every 30 min to determine whether the group wished to begin drinking during the next half hour. Each subject earned 30 points for every half hour that the group abstained from drinking.

At the beginning of the Termination period, subjects were told that drinking would have to terminate within 2 days, that they would continue to meet every 2 hr for decisions, and that no positive reinforcement could be earned until they all stopped drinking. When this happened, each would earn $2.50 for every 2 hr between the time they permanently abstained and the end of the period.

Measures

Data were gathered with the following instruments and procedures:

1. Consumption Measures. Information on temporal and quantitative aspects of cigarette consumption was gathered by direct observation. The computer was programmed to record each subject's use of the drink dispensers and the amount of time each subject spent out of his room during isolation.

2. Observational and Self-Report Instruments. Twice each day subjects completed a card-sort of standard Mood Adjective Check List (MACL) items. This measure assesses 7 self-reported mood state factors: Anxiety-Tension, Depression-Dejection, Confusion, Vigor-Activity, Anger-Hostility, Friendliness, and Fatigue-Inertia. A shortened version of the MACL, given following every decision, had subjects rate themselves on a continuum from Not-At-All to Extremely in relation to a single adjective. Subjects' liking for each other was self-assessed by means of a questionnaire, the frequency of their speech in group discussions was

recorded, and the kind and location of their behavior was measured by Behavioral Observation Scales, all in ways and at times outlined above. The 17-item form of the Wittenborn Psychiatric Rating Scales (WPRS) (10,11) was completed every other evening during all phases of the study except Initiation and Termination, when it was completed every evening. An advanced graduate student in clinical psychology completed the instrument for all subjects. The 17-item WPRS provides data on 6 major syndrome factors: Anxiety, Somatic-Hysterical, Obsessive-Compulsive-Phobic, Depressive Retardation, Excitement, and Paranoia.

3. Physical and Physiological Measures. A measure of ataxia, reflecting each subject's capacity to stand without falling on a 4X24-inch raised platform for 2 min (12) was administered 4 times a day shortly after a standard digit-symbol substitution test, which required subjects to match symbols with appropriate numbers for 30 sec. Both measures were designed to provide a behavioral measure of degree of intoxication. BALs was assessed 3 times a day, providing the standard physiological measure of intoxication. A 22-item Physical Checklist (PCL), in card-sort form, was completed twice each day by each subject, when vital signs (temperature, pulse rate, blood pressure and respiration rate were also recorded.

Data Analysis

Three different sets of analyses of variance were undertaken: (1) The first series of analyses compared behavior during Predrinking and Postdrinking. (2) The second contrasted behavior during the two Maintenance phases with that during ad-lib. drinking. To simplify analysis by equating the number of treatments in all study phases, and to include

data throughout the study sequence, data from the first day of the first socialization condition during Ad-lib. drinking were combined with data from the second day of the second socialization condition of that phase into one "statistical socialization conditon." (3) The third series of analyses of variance involved over-all comparison of behavior during the drinking and nondrinking phases.

Initiation and Termination phases could not be easily analyzed by statistical procedures. Instead, they are dealt with descriptively by Goldman[4] in a paper which focuses on these periods per se and on the social aspects of group behavior.

Chart 3 outlines the three analyses of variance employed with data from this study. Analyses of covariance were also employed to statistically control for the impact of BAC on a wide variety of associated behavioral data.

RESULTS

Drinking Behavior

Figure 2 graphs the BACs attained by the each subject throughout the study. All subjects refrained from drinking, even though alcohol was potentially available, for 6 hr into the Initiation phase. After three of the subjects began to drink, subject 3 continued to abstain for 10 hr more. Shortly after they decided to begin to drink, subjects 1, 2 and 4 achieved BAC "peaks" of 300, 200 and 130 mg per 100cc. respectively. These initial BACs were among the highest that subjects 1 and 2 reached during the entire study. All three of these men then sharply reduced their rate of drinking on entering the Maintenance I phase.

Analysis of variance performed on adjusted[5] BACs revealed that those

attained during Ad-lib. drinking were significantly higher (F=15.51, df=1,15, $p < .01$), than those attained during Maintenance drinking. Maintenance=I BACs were also significantly higher (F=8.81, df=1,15, $p < .01$) than Maintenance-II levels. Figure 2 shows that the BACs of all subjects during Ad-lib, drinking were clearly higher than those during the Maintenance-I phase, so that the significant difference between Ad-lib. and Maintenance phases was due in large part to the difference between Ad-lib. and Maintenance-II BACs. Although subjects 2 and 4 did maintain higher BACs during Ad-lib, than during Maintenance-I drinking, and all the subjects tended to reach higher "peaks" during the Ad-lib. period, the average BAC of the four subjects combined was not different during the two periods.

Drinking ceased for an hour when the Termination phase began. It was then resumed at very high levels, the four subjects reaching "peaks" BACs of 380, 210, 200 and 200 mg per 100 cc. respectively. Subject 1 attained his highest BAC during Termination, while the Termination BACs of the other three subjects were among the highest they reached during the study.

The BACs did not differ significantly in the Socialization and Isolation periods.

Decisions and Drinking

Figure 3 illustrates the effect of the decision process itself on drinking. Analysis of variance of the consumption data reveals a significant interaction (F=5.52, df =1,21, $p < .05$) between phase of drinking (Maintenance=I vs Maintenance-II) and decision type (Group vs Individual). The figure shows that in the Maintenance=I period, the average level of group decisions appears higher than the average of individual decisions;

this relationship holds for alcohol consumption as well. Thus, for this period, the net effect of a group decision is to increase the consumption of alcohol. This picture changes during the Maintenance-II period, late in the drinking episode, when there is no apparent difference between the average group and individual decision and less alcohol was consumed during group than during individual decision intervals. Isolation appears to magnify the difference between group and individual decisions and consumption during Maintenance-I, while a reverse effect is suggested during Maintenance-II.

Decision Violations and Socialization

Table 1 shows the number of broken group decisions during each experimental phase. Violations parallel quite closely the mean BACs attained; the higher the BAC the more likely that a decision will be broken. Isolation does not appear to be an important factor in decision-breaking.

The subjects' physical location on the ward was noted at 15-min intervals throughout the day; the total number of out-of-room tallies during isolation periods is also shown in Table 1. The only isolation period during which subjects spent an appreciable portion of time outside their bedrooms occurred during the Ad-lib. drinking period, that period in which BACs were highest.

Intoxication Measures

The drinking period yielded significantly poorer performance on both behavioral measures of intoxication, the board-standing (ataxia) task ($F=6.15$, $df=2, 15$, $p<.05$) and the digit-symbol substitution task ($F=35.93$, $df=2, 15$, $p<.01$). Ataxia was more pronounced during Ad-lib. than Maintenance drinking ($p<.01$) and during Maintenance-I than Maintenance-II ($p<.05$). In this way these two measures clearly paralleled the BAC level.

Affective Behavior, Physical Symptoms and Psychopathology.

The subjects' behavior became increasingly pathological when BACs rose beyond 200 mg per 100; they began to demonstrate psychotic cognitive and perceptual behavior as their BACs approached 300 mg per 100 cc.

As in previous studies; MACL data showed that with one exception (subject 4, who was strikingly nonreactive to most independent variables), the subjects' mood changed in the direction of greater discomfort during drinking, increasing with rising BAC. A decrement in mood was also observed during the early part of the Postdrinking phase, when withdrawal from alcohol caused pronounced physical and affective discomfort.

Both Anger ($F=5.45$, $df=1,15$, $p<.05$) and Depression ($F=8.08$, $df=1,15$, $p<.05$) were significantly higher during Ad-lib. drinking than during Maintenance drinking; Depression was also significantly higher ($F=8.28$, $df 2, 14$, $p<.01$) during drinking than during nondrinking phases. Vigor was significantly greater ($F=5.48$, $df=1,15$, $p<.05$) during drinking-socialization periods than during drinking-isolation periods; analysis of covariance ($F=5.25$, $df=1,14$, $p<.05$) showed that this difference in Vigor was not only due to a change in BAC but to the environmental differences explicit in the socialization and isolation conditions. Fatigue was significantly greater ($F=7.66$, $df=1,9$, $p<.05$) during Postdrinking than during Predrinking.

A significant interaction ($p<.05$, $df=2,15$) between the socialization-isolation and the drinking-nondrinking variables was revealed for Tension ($F=4.10$), Vigor ($F5.00$), Fatigue ($F4.57$) and Confusion ($F4.46$). Interaction in this context indicates that the greatest disturbance in mood occurred during concurrent drinking and isolation. The fact that Vigor

($p < .05$), Fatigue ($p < .01$) and Confusion ($p < .05$) also showed a sign
cant drinking-nondrinking effect alone is not interpretable, since t
effect was part of the previous (drinking-isolation) interaction.

Analyses of covariance did not yield significant results for an
other MACL factor than Vigor; that is, they covaried with BAC. This
ing indicates that all other significant mood differences were large
function of differences in BAC during the various parts of the study

The PCL data show a significant increase in physical complaints
drinking; the beginning of the Postdrinking/withdrawal phase had the
effect. Significantly more complaints on all four PCL subscales were
during Ad-lib. drinking than during Maintenance drinking. (Gastroint
al, $F=8.30$, $df=1,15$, $p < .05$; Symptoms Specific to Alcohol, $F=9.30$, df
$p < .01$; Temperature-Metabolism, $F5.83$, $df=1,15$, $p < .05$; General Disco
$F8.17$, $df=1,15$, $p < .05$). A significant interaction ($p < .05$) was obse
on every PCL subscale between socialization-isolation and drinking-
nondrinking, indicating that physical complaints, along with mood dis
bances, increased when drinking and isolation were concurrent.

Psychopathological behavior, reflected by the WPRS, also increas
during drinking. Five WPRS factors, Anxiety ($F=4.03$, $df=2,15$, $p < .05$
Somatic-Hysterical ($F=7.79$, $df=2,15$, $p < .01$), Obsessive-Compulsive-Ph
($F=5.45$, $df=2,15$, $p < .05$), Depressive Retardation ($F=5.09$, $df=2,15$, p
and Excitement ($F=10.57$, $df=2,15$, $p < .01$), were higher during drinkin
than during nondrinking phases. Anxiety and Depressive-Retardation w
higher ($p < .05$) during Predrinking periods than during Postdrinking.
Significantly more ($p < .05$) symptoms of Obsessive-Compulsive-Phobic
behavior were observed during Ad-lib. drinking than during Maintenanc

drinking. The fact that more Somatic-Hysterical behavior was also observed during Ad-Lib. than during Maintenance drinking ($p < .05$) was consistent with the subjects' self-reports on the PCL.

Analysis of the data obtained during decision-making failed to reveal significant differences in mood or interpersonal liking between group and individual decision times. No consistent differences in self-reports of the need to drink were observed during any of the study periods.

DISCUSSION

Although we found significant differences in alcohol consumption between phases of the study when drinking was governed by decision-making (the two Maintenance phases) and when it was not (the Ad-lib. phase), the failure to find significant differences in alcohol consumption between the Maintenance-I and Ad-lib. phases suggests the possibility that differences in alcohol intake came about simply because Maintenance-II coincided with a usual decrease in alcohol intake that occurs after a drinking spree. However, data from previous studies, e.g., Nathan and O'Brien (3); Allman, Taylor and Nathan (8), do not support this alternate view; they show instead that drinking is usually heaviest shortly after it begins and that the final days of a drinking episode may also be characterized by heavy drinking, particularly if alcohol is freely available. By contrast, two of our subjects clearly failed to enter a sustained "spree" after drinking began and three did not attain their highest BACs until Ad-lib. drinking began, suggesting strongly that decision-making prevented subjects from reaching the very high BACs they would likely have attained during Maintenance-I if they had not been required to make decisions about drinking. As a result, likely differences

between Maintenance and Ad-lib. phases were very probably reduced because the Maintenance-I period coincided with a naturally heavy period of drinking.

We thus conclude that having to make decisions about alcohol consumption, in the context of a schedule of differential reinforcement for lower consumption, reduced the quantity of alcohol consumed by our subjects.

Delay of Reinforcement and Drinking

In view of this result, it is important to note that the design of this study permitted assessment of our subjects' capacity to delay delivery of alcohol reinforcement. That is, implicit in their decision-making was the necessity on their part to choose between differing levels of alcohol and point reinforcement over varying time spans. For example, subjects could choose to forego reinforcement points entirely by choosing to drink large quantities of alcohol immediately. Or they could exercise a second option, presumably a form of intermediate delay of reinforcement, by earning points (by only moderate drinking) to be spent for alcohol later. The third option open to our subjects, involving the longest delay of reinforcement, required accumulation of large numbers of points for eventual conversion into money at the study's end (with subsequent purchase of alcohol outside the laboratory possible.) Three of our four subjects hovered between immediate and intermediate delays in alcohol reinforcement. Early in the drinking period, they chose to drink immediately and to earn few points. Later in drinking they accumulated moderate numbers of points, but spent them still later for alcohol. It should be remembered, however, that if subjects chose never to earn points during Maintenance-I drinking, they would quickly have exhausted

the points accumulated during Predrinking in the upcoming Ad-lib. phase. Instead, all the subjects "saved" enough points to "tide them over" most of the Ad-lib. period. Only subject 4 (who also showed the most controlled pattern of drinking and the fewest behavioral effects of alcohol), converted a significant number of points to money at the end of the study.

In view of these observations, it was not surprising that, when threatened with the imminent unavailability of alcohol, the subjects were unable to stop drinking when the Termination phase began, despite the fact that but 2 days of drinking remained and a great deal of money could be earned by immediate termination.

Group Influences on Drinking

The contrast between individual and group decisions during Maintenance drinking allows an assessment of the impact of the group on the drinking behavior of its members. In this context, we must emphasize that, following a group decision, the subjects were in no way required to consume the number of drinks decided upon: the group earned reinforcement points so long as no subject exceeded the group decision. Thus, even if a group decision were set quite high in order to accommodate the "thirstiest" member, the formal requirements of the study did not "pull" for increased drinking by all subjects in such a situation.

The only statistically clear effect in the data is in the interaction between individual and group decisions and time into the drinking episode (early-Maintenance-I, or late-Maintenance-II.) That is, the effect of the group on the drinking behavior of its members changed during the course of the study. In the Maintenance-I period, the thrust of the group was toward higher levels of drinking; both decision and consumption levels were higher for group than for individual decision

intervals. The subjects as a group acted so as to elicit higher drinking levels among themselves than at least most of them preferred when left to individual choice. This picture is consistent with the rationale frequently advanced by alcoholics that they sometimes drink because "all their friends are drinking." In this regard, it is interesting to note that the discrepancy between individual and group decisions appears accentuated during isolation, as though subjects who did not want to drink as much as others now felt less pressure to do so.

In the Maintenance-II period, group pressure was in the opposite direction, toward lower levels of drinking, especially during socialization. At this point, the subjects had been drinking for nearly 11 days and were now apparently influenced to accumulate points towards a cash bonus at the end of the study rather than to consume immediately. We might speculate tha, at this point, there was little need for the subjects either to impress each other with their drinking ability or to use the group to provide a taionale for heavy drinking. At any rate, group pressure effectively augmented the reinforcement schedule in the direction of lower drinking rates.

IMPLICATIONS

Despite various considerations militating against a change in drinking behavior by our subjects, their drinking behavior was altered significantly both by a differential reinforcement schedule and by decision-making. As a result, we conclude as follows: (1) Social influence was a powerful determinant of alcohol consumption by our alcoholics. (2) Contrary to the widely held view that once an alcoholic begins to drink,

he can do little to control his drinking, social and economic controls that altered our subjects' behavior were revealed. (3) Because effective controls were uncovered, we might speculate that the treatment of alcoholism might not require total abstinence, but rather might involve therapeutically modulated controlled drinking. Work in this sphere is proceeding in this laboratory and elsewhere (3, 4, 5). (4) In this context, it seems likely that the therapeutic efficacy of the group-decision paradigm used in the present study could be enhanced if the cognitive set of the alcoholic group members was toward treatment rather than experimental drinking. Specific suggestions for ways in which this procedure might be modified for treatment purposes have been detailed by Goldman.[6]

REFERENCES

1. Mendelson, J.H., LaDou,J. and Solomon, P. Experimentally induced chronic intoxication and withdrawal in alcoholics. Pt.3. Psychiatric findings. Quart. J. Stud. Alc., Supple. No. 2, pp. 40-52, 1964.

2. Nathan, P.E., O'Brien, J.S. and Lowenstein, L.M. Operant studies of chronic alcoholism; interaction of alcohol and alcoholics. In: Creaven, P.J. and Roach, M.K. eds. Biological Aspects of Alcohol. Austin; University of Texas Press: 1971.

3. Nathan, P.E. and O'Brien, J.S. Interpersonal and affective behavior of alcoholics and nonalcoholics during prolonged experimental drinking. Behavior Therapy 2: 455-476, 1971.

4. Mendelson, J.H. and Mello, N.K. Experimental analysis of drinking behavior of chronic alcoholics. Ann. N.Y. Acad. Sci. 133: 828-845, 1966.

5. Weiner, S., Tamerin, J.S., Steinglass, P. and Mendelson, J.H. Familial patterns in chronic alcoholism; A study of a father and son during experimental intoxication. Amer. J. Psychiat. 127: 1646-1651, 1971.

6. Steinglass, P., Weiner, S. and Mendelson, J.H. A systems approach to alcoholism; A model and its clinical application. Arch. Gen. Psychiat. 24: 401-408; 1971.

7. Mendelson, J.H., Mello, N.K. and Solomon, P. Small group drinking behavior; An experimental study of chronic alcoholics. In: Wikler, A., ed. The Addictive States, Vol. 46: Research Publication of the Association of Nervous and Mental Diseases, Baltimore: Williams and Wilkin, 1968.

FOOTNOTES

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2. Requests for reprints should be sent to Mark S. Goldman, Psychological Clinic, Rutgers University, New Brunswick, N.J. 08903
3. Model 900, Stevenson Corp., Red Bank, N.J.
4. Goldman, M.S. To drink or not to drink; an experimental analysis of the process of group drinking decisions by alcoholics. (Unpublished m.s., 1972.)
5. It was necessary to correct the BACs of Subject 2 on days 16 and 17, and of Subject 3 on day 9, since drinking limits were lowered by the staff in response to psychotic behavior displayed by these subjects at high BACs. For analysis of Subject 2, BACs of days 18 and 19 were substituted, as preliminary analysis showed no significant difference for Socialization-Isolation. For Subject 3, the day 9 BAC was replaced with an average of days 6, 7 and 8.

8. Allman, L.R., Taylor, H.A. and Nathan, P.E. Group drinking during stress; Effects on drinking behavior, affect and psychopathology. Amer. J. Psychiat. [In press.]

9. Jellinek, E.M. The disease concept of alcoholism. Highland Park, N.J.; Hillhouse Press: 1960.

10. Wittenborn, J.R. Wittenborn psychiatric rating scales. New York; Psychological Corp. 1955.

11. Wittenborn, J.R. Manual for the WPRS; Preliminary draft. New Brunswick, N.J.: 1968.

12. Nathan, P.E., Titler, N.A., Lowenstein, L.M., Solomon, P., and Rossi, A.M. Behavioral analysis of chronic alcoholism. Arch. Gen. Psychiat. 22: 419-430, 1970.

13. Lovibond, S.H. and Caddy, G. Discriminative aversive control in the moderation of alcoholics' drinking behavior. Behavior Therapy, 1: 437-444, 1970.

14. Mills, K.C., Sobell, M.B. and Schaefer, H.H. Training social drinking as an alternative to abstinance for alcoholics. Behavior Therapy, 2: 18-27, 1971.

15. Silverstein, S.J., Taylor, H.A. and Nathan, P.E. How high I am; a self-control training paradigm for alcoholics. Behavior Therapy [In press.]

CHART I. DECISION EARNINGS, AND ALCOHOL, CIGARETTE AND SOCIALIZATION CHARGES

EARNINGS FOR ALCOHOL AND CIGARETTE DECISIONS

Drink Decision		Cigarette Decision	
0:	60 points	0:	12 points
1:	40 "	1:	8 "
2:	35 "	2:	7 "
3:	30 "	3:	6 "
4:	25 "	4:	5 "
5:	20 "	5:	4 "
6:	15 "	6:	3 "
7:	7 "	7:	1 "
8+:	0 "	8+:	0 "

STARTING BANK: 200 points

CHARGES FOR ALCOHOL, CIGARETTES AND SOCIALIZATION

Cigarettes: 1 point each

Drinks: 5 points each

Socialization: 10 points per 15 min out of room

Disciplinary Fine: 50 points

Chart 2. PLAN OF STUDY IN DAYS

Predrinking		Initiation	Maintenance I			Ad-lib Drinking		Maintenance II		Termination, Postdrinking		
Cigarette Decisions			Drink Decisions			Cigarette Decisions		Drink Decisions			Cigarette Decisions	
2	2	open-end	2	2	2	2	2	2	2	2	2	2
Soc.	Isol.	Soc.	Soc.	Isol.	Soc.	Isol.	Soc.	Isol.	Soc.	Soc.	Isol.	Soc.

Soc. - Socialization

Isol. - Isolation

Chart 3. ANALYSIS OF VARIANCE DESIGNS

Source	df
Pre-and Post-Drinking	
Socialization-Isolation	1
Predrinking-Postdrinking	1
Socialization-Isolation x Predrinking-Postdrinking	1
Subjects	3
Subjects x Treatments	9
Drinking Period	
Socialization-Isolation	1
Maintenance-Ad-lib.	1
Maintenance I - Maintenance II	1
Socialization-Isolation x Maintenance-Ad-lib.	1
Socialization-Isolation x Maintenance I - Maintenance II	1
Subjects	3
Subjects x Treatments	15
Combined Periods	
Socialization - Isolation	1
Drinking - Nondrinking	2
Socialization-Isolation x Drinking-Nondrinking	2
Subjects	3
Subjects x Treatments	15

Study Phase:	PRE		M-I		A-Lb		M-II		POST	
	Soc.	Iso.	Soc.	Iso.	Soc.	Iso.	Soc.	Iso.	Soc.	Iso.
Broken Group Decisions	0	1	3	3	4.5	4	0	1	0	0
Times (BOS) Out-of Room	-	13	-	18	-	40	-	14	-	11

Soc. = Socialization; Iso. = Isolation

Table 1. Broken Group Decisions and Socialization Behavior

Legends

Figure 1. Floor plan of the Alcohol Behavior Research Laboratory. The day room contains a pool table, TV, dining table, sofa and chairs. The bar area contains bar equipment and lights so as to simulate a "real world" bar. Subject rooms 101 through 104 have a bed (A), a small table with a TV on it (B), a large chair (C), and a control console occupying space on one wall (D).

Figure 2. Range and Variability of Blood Alcohol Levels

Figure 3. Drinking Decisions and Alcohol Consumption during Maintenance-I and Maintenance-II Phases. I=individual decisions, G=group decisions; SOC=socialization, ISO=Isolation.

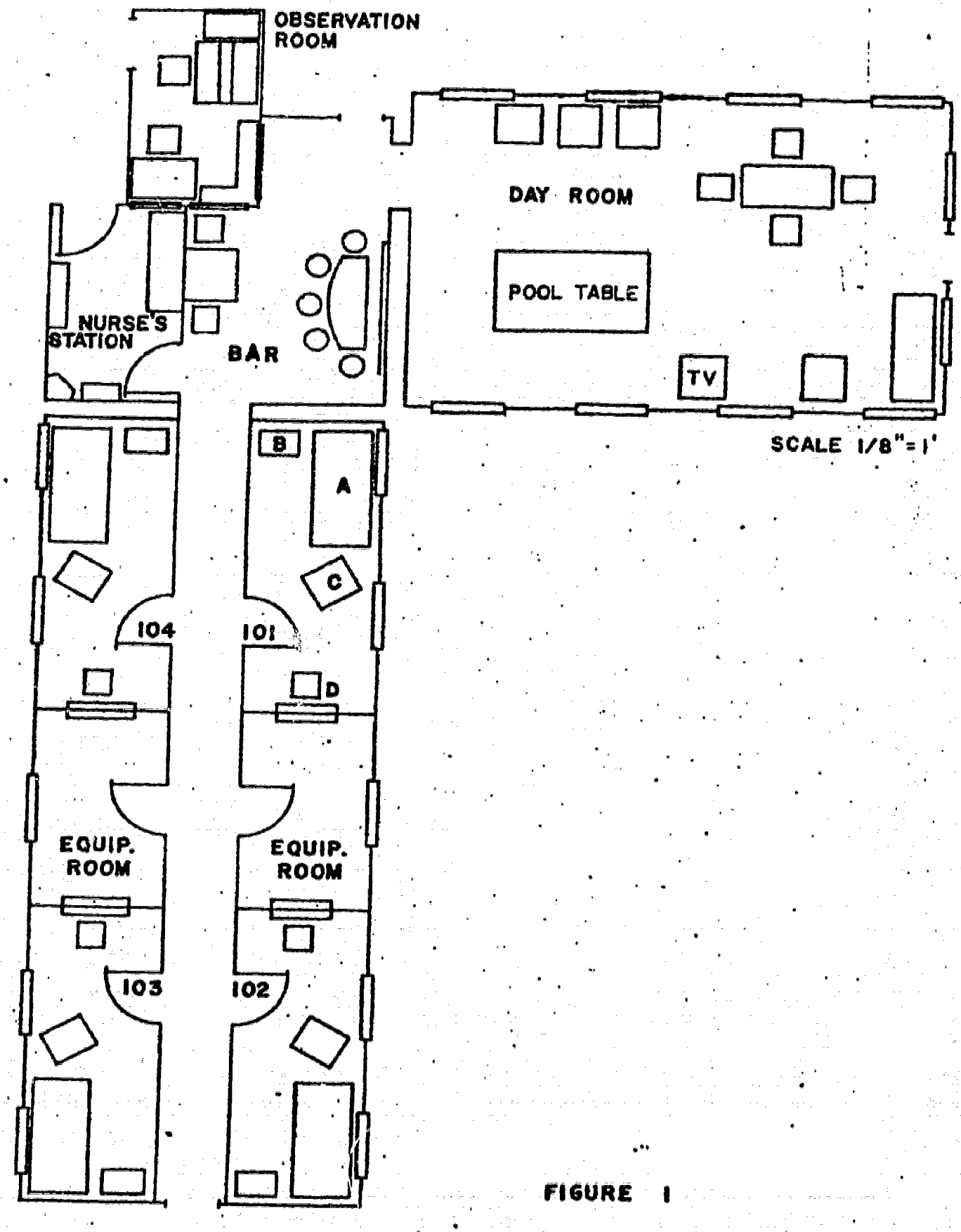
OBSERVATION ROOM
DAY ROOM
POOL TABLE
TV
NURSE'S STATION
BAR
SCALE 1/8"=1'
A
B
C
D
104
101
EQUIP. ROOM
EQUIP. ROOM
103
102

FIGURE 1

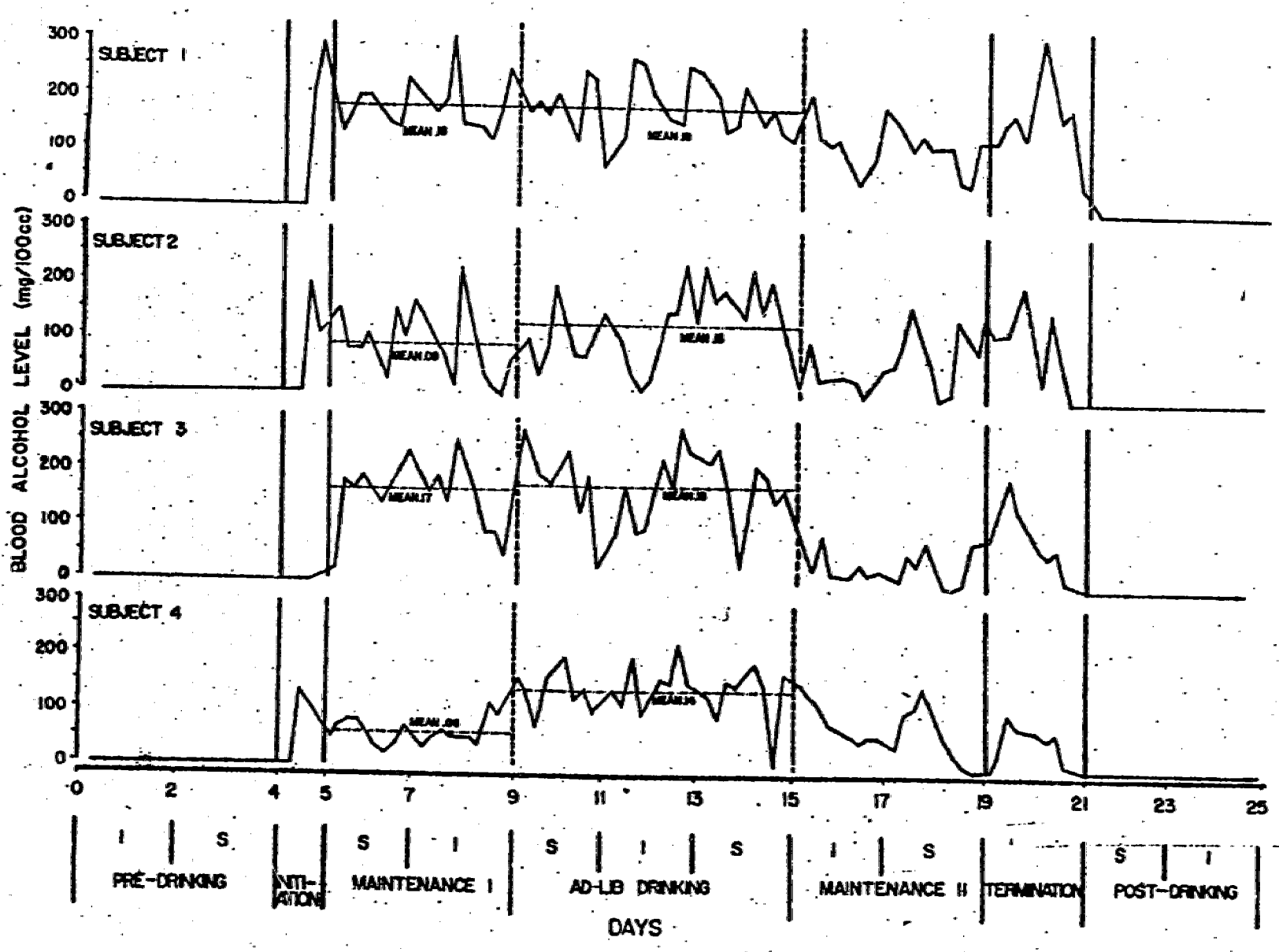
SUBJECT 1
SUBJECT 2
SUBJECT 3
SUBJECT 4
BLOOD ALCOHOL LEVEL (mg/100cc)
300
200
100
0
0
2
4
5
7
9
11
13
15
17
19
21
23
25
I
S
PRE-DRINKING
INITI-ATION
MAINTENANCE I
AD-LIB DRINKING
MAINTENANCE II
TERMINATION
POST-DRINKING
DAYS

FIGURE 2

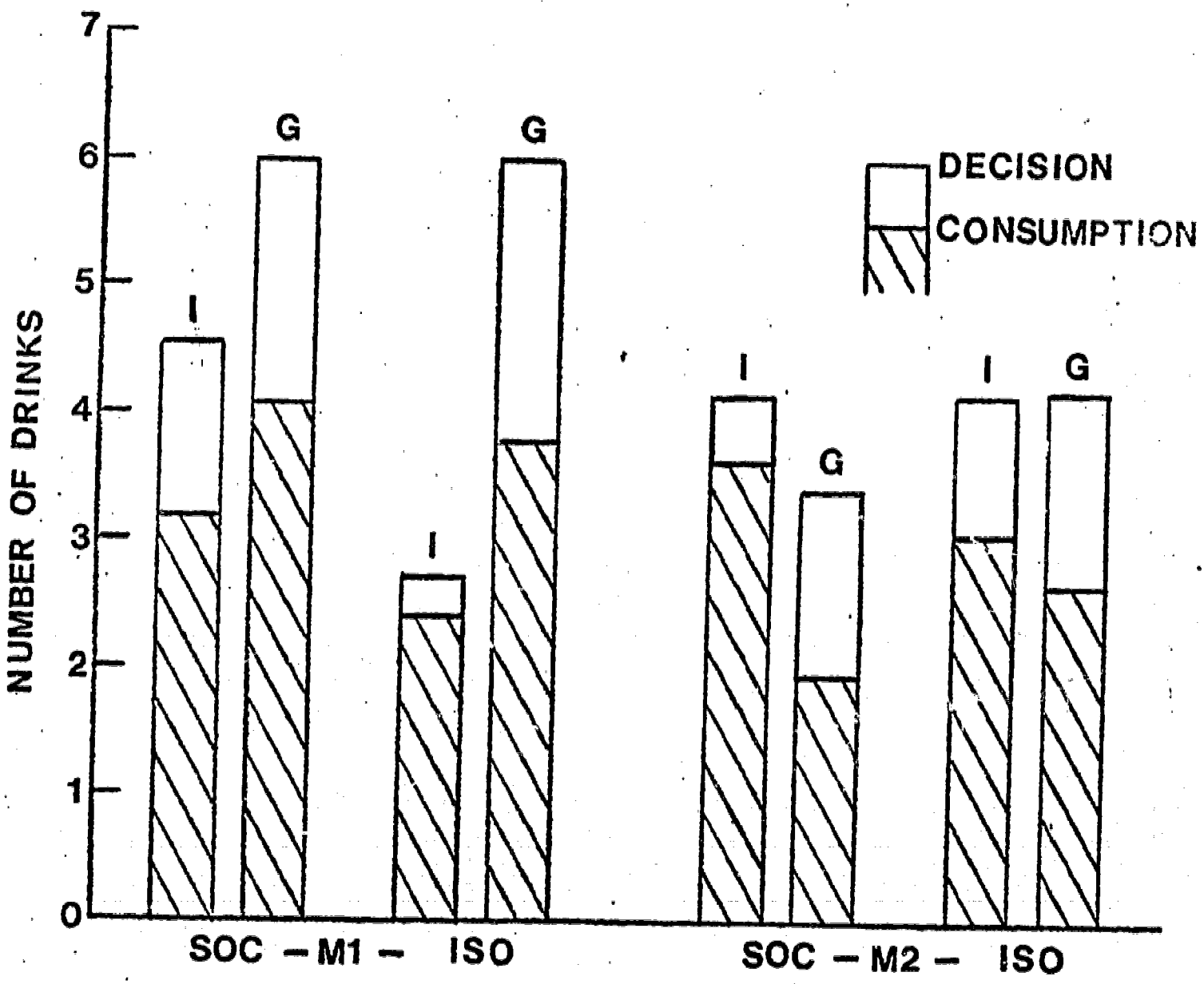
NUMBER OF DRINKS
7
6
5
4
3
2
1
0
G
G
I
I
I
G
I
G
DECISION
CONSUMPTION
SOC – M1 – ISO
SOC – M2 – ISO

FIGURE 3