A PSYCHODYNAMIC STUDY OF A PATIENT DURING EXPERIMENTAL SELF-REGULATED RE-ADDICTION TO MORPHINE*

BY ABRAHAM WIKLER, M. D.

In general, research on the subjective aspects of morphine addiction has been of two kinds: (a) the acquisition of data on behavior, and replies of addicts to questions, and (b) the use of free association technics and dream analysis in studies of addicts in an uncontrolled environmental setting. While much valuable information has been acquired by such procedures,[1-6] many problems connected with drug addiction have not been answered. For example, the addict's often-repeated statement that "morphine makes me feel normal," raises the question, "What does the addict mean by 'normal'"? The euphoria-producing effects of morphine appear to be important in the genesis of morphine addiction, yet it is not clear that the term "euphoria" means the same thing to one person that it does to another.

If narcotic addicts use morphine to experience "euphoria," why do they prefer drugs of this type to alcohol? Also, why is narcotic addiction condemned more strongly than alcohol addiction in some cultures, while the reverse is true in others? Again, why does the typical addict continue to use morphine even when tolerance has been established to enormous doses of the drug, and when, presumably, the "euphoric" effects can no longer be experienced? Almost invariably, the addict states that he continues to use drugs under such circumstances because he fears the suffering experienced during the development of the morphine abstinence syndrome. If so, why do not experienced addicts give up the drug by reducing the dose rapidly or gradually, since they know that such a withdrawal procedure is attended by little suffering?

Another important question is whether a socially productive life is possible in a person who is actively addicted to morphine. In the experience of the author and of many others who have been especially interested in the problem, the degree of social productivity which is compatible with active morphine addiction varies greatly in individuals. While legal-economic factors play a role in determining the social behavior of addicts, clinical observations

*From the National Institute of Mental Health, National Institutes of Health, Public Health Service. Research Branch, United States Public Health Service Hospital, Lexington, Ky.

during experimental addiction to opiates have shown that even when no such legal-economic factors exist, marked variations in productivity are observed in individuals who are actively addicted. Evidently, such variations may be related to differences in personality, the precise elucidation of which remains to be determined.

One difficulty which has attended the investigation of such problems by use of the technics described, has been that of the limitations inherent in the "retrospective" type of research, in which an attempt is made to delineate "factors" which may have contributed in the past to the molding of the individual as he is now. While this difficulty cannot be avoided entirely, it was felt that much could be learned about the psychodynamic aspects of morphine addiction by use of the technics mentioned in an "experimental" setting—namely, the study of individuals during self-regulated readdiction to morphine in a fairly well-controlled environment. The acquisition of data by such studies is necessarily slow and time-consuming, but it was deemed worth while to report the findings in one subject both because of the data acquired and the methodology employed. This investigation was made in 1947-1948. While circumstances to date have not permitted continuation of such studies, many of the inferences which were derived from this investigation have been verified in other individuals in the course of other research. On the whole, the findings appear to be applicable to at least a large group of persons who are habitually addicted to the use of opiate-like drugs.

Subject and Method

The patient was selected for this study (at the United States Public Health Service Hospital, Lexington, Ky.) because he seemed to be representative of the type of addict who volunteers for research studies on experimental addiction, and also because he seemed better able to verbalize than most such patients.

His personal history may be summarized briefly as follows. He was born in 1903 in Detroit, the oldest of four children in a middle-class home of comfortable economic level. The father was a saloon keeper, the mother a housewife, both Jewish. A brother, two years younger, operates an automobile agency. A sister, 17 years younger, is married. A brother, 30 (?) years younger, lives with his parents. All are apparently well adjusted and have no criminal records. The patient attended school to the tenth grade (age

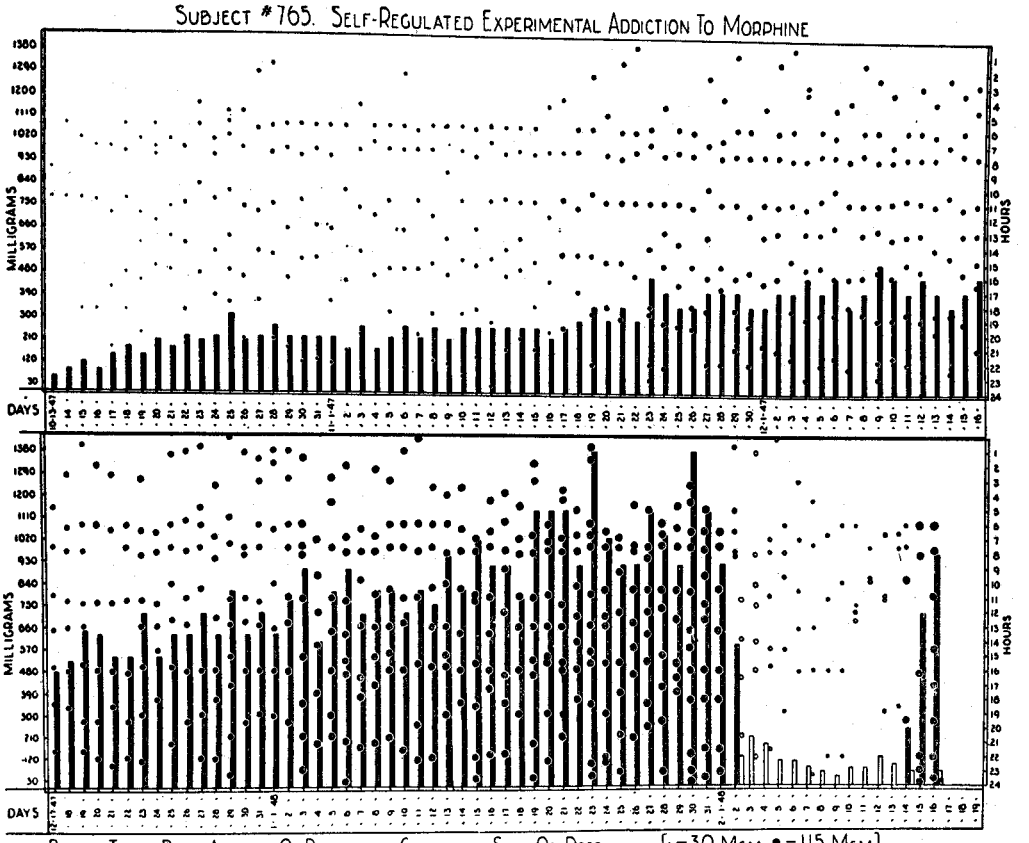
16) then left against the advice of his parents. He worked in a "gambling joint," then at odd jobs till the age of 20, then became a "bootlegger," operating a speedboat at night across the channel between Detroit and Windsor. About this time he began to be arrested frequently but was always released except on one occasion when he served 90 days for larceny. He began to experiment with drugs in the form of opium smoking at 19, but did not become addicted until he was about 22 years old.

He gave a vague history of being married at 22 or 23 and "divorced" at 31, but neither statement could be verified. At the age of 33, he began to use morphine by hypodermic injections. His first sentence for narcotics law violation was three and one-half years in 1938 for possession of narcotics, a term which he served at Lexington, Ky., and Fort Worth, Texas. The next sentence was in 1946 (three years full term), which he was serving at the time of the present study. He was eligible for conditional release in September 1948. His physical condition was good except for slight deafness bilaterally, cause unknown. He also had a slight atrophy and a Babinski sign in the left lower extremity, cause unknown, apparently stationary. Electro-encephalograms were negative, the Wechsler-Bellevue was 104—average intelligence.

The patient had previously completed several addiction studies in the research department and had experienced morphine and methadone withdrawals. When interviewed relative to entering upon the present study he was informed that drugs would be administered according to some undisclosed plan and that frequent interviews and perhaps psychological and EEG tests would be made. Eight interviews were obtained before he had any drug. Then his reactions after a single dose were recorded. After the next interview, two days later, he was informed that he would be given any drug in any amount, via any route, as often as he liked for an unspecified length of time. One month before the last dose was to be given he would be informed of the fact, but no suggestion was made regarding the length of time that the experiment would last. A limiting factor was that, by station regulation, he could not receive any drug for experimental purposes for a period beginning six months before the date of his prospective discharge from the institution. This gave the patient an expectable maximum of six months for the test. It was emphasized that during the test he did not need to become physically dependent and that he

was not required to work (as a clerk in the clinical laboratory) unless he wanted to.

The subject lived in the research ward, mingling freely with other patients under study, except for the periods when he worked in the clinical laboratory, which was situated in another part of the hospital. Trained attendants unobtrusively observed the subject daily. Observations of rectal temperature, pulse rate, blood pressure and respirations were made once daily, and electro-encephalograms were made at intervals of about two weeks. The total amount of drugs received by the patient each day, the size of each dose and the time of administration were recorded throughout the study and are illustrated in the figure. The subject was studied by the investigator one to four times weekly, when material was obtained by direct interrogation, and by recording verbatim, spontaneous productions and reports of dreams, with free associations



to both. Initially, direct interrogation was made in a face to face situation. After drug administration was begun, the subject lay supine on the examining table, while the investigator recorded his productions while out of view. Throughout the study, the investigator avoided comments of any sort, except for occasional questions for clarifications and to interrupt long periods of silence. Otherwise, contact with the patient was held to a minimum, without giving the appearance of deliberate avoidance.

The material can best be presented in a chronological order divided into the following periods: (1) before allowing drugs, (2) the first two months of addiction, (3) the last two months of addiction, (4) the reduction period and (5) after complete withdrawal of drugs.

Results

A. *Period Before Drugs*

During this period the patient volunteered little information and most of the data were obtained by question and answer method. When asked if he would like to be a subject for the experiment, he replied, "Why not—if I can get even with the government and cheat them out of some time?" He gave the factual material recorded, seemed relaxed, but wary, and he frequently digressed to inquire when he would get his first "shot." His earliest memory was that of suffering a cut on his hand, which alarmed his mother, who called her husband and a doctor; there was great excitement at home and the patient cried; he was about five or six years old. Another early recollection was his confirmation at 13, when he received presents and was much admired and praised; his father gave him a watch. Other recollections were moving into a new neighborhood in Detroit and exploring the empty lots around his house with some friends, and also his first arrest for possession of narcotics, which occurred while he was walking in a blinding snowstorm in Detroit. Bail was set for $7,500; he was ashamed to go home because of what his parents might think. He frequently spoke spontaneously of how sorry he was that he had caused his parents so much trouble.

He recalls his father as a strong man with big muscles who had fought in the Spanish-American War: as a child, he thought he had been a general. However, he had no close relationship to his

father who appeared as a shadowy figure who came home for supper and gave him money or an occasional spanking. He described his mother as a very fine woman who always gave him everything, concealed such misdemeanors as "playing hookey" from his father but who always warned him that he wasn't doing the right thing. There was little home life; the family would eat out several nights a week and then go to the movies. He had many friends as a boy, was a follower rather than a leader, and never got into any fights (which he avoided). He had little to do with his next younger brother who had different friends, but shared toys and sports articles occasionally. He recalls no jealousy or strife with his brother except in adolescence when he struck his brother for stealing the keys of his Ford car (bought for him by his father). When the brother fought back he was so amazed he stopped and laughed.

The other siblings did not enter the picture until the patient was in late adolescence. He was surprised when he learned his mother was going to have a baby but did not feel resentful; by this time he was already living away from home, earning his own money in a gambling house. Grandparents and uncles were recalled as good people who gave him money (dollar bills). Even while in grade school he spent most of his spare time going to shows, baseball games, fights, and otherwise amusing himself passively. He found nothing to interest him at home.

He masturbated occasionally as a child and had his first heterosexual experience at 12 when, he stated, a girl of 13 suggested it. He said that when he was about to have an orgasm, he thought he had to urinate and the girl laughed at him. He told some of his boyfriends about it and they laughed too. Later he learned what an orgasm was. He felt ashamed and guilty. At 15 he began to visit prostitutes and had to steal long pants to gain admission. He felt guilty about stealing the pants. At about 19 he had his first and only homosexual experience when he was approached by a fellow in a Turkish bath. He was "disgusted" afterward and had no further similar experiences. He occasionally thinks of "fairies" when incarcerated but rejects the idea as too revolting. The facts of his marriage were always very vague. He thought his wife was a fine woman, and they got along well until he became addicted to drugs, when he lost interest in sexual relations and she left him (divorced?) after eight (or 12) years. During this period he had

given up drugs several times to please his parents (not his wife). After his wife left him, he felt mildly sorry, but he "cared more about drugs than her."

His first contact with drugs occurred when he was about 19 when he was waiting for two of his friends in a hotel room and, on investigating the cause of the delay, discovered that they were smoking opium. He tried it too, liked it, bought the necessary paraphernalia and began to smoke irregularly. He did not become physically dependent until he was about 22 years old. Then his life assumed a typical pattern as follows. He would run his bootlegging speedboat at night, return home or to his hotel room in the early morning, go to sleep, then wake up about 3 or 4 p. m. and smoke his pipe.

On awakening, he would feel wretched, shaky and uncomfortable. After smoking, he would feel "peppy," would dress, go out to dinner with a girlfriend, go for a ride or to a show and then to his room with or without the girl. He had no desire for sexual intercourse, but often the girl would insist. He would be able to have erections on stimulation several hours after smoking, and could also have orgasms before smoking, but in no case did he desire intercourse. On the other hand he could maintain erections for hours if he smoked opium three or four hours before. He himself wanted the girl just for company. Frequently a group of men and women would smoke and lie around in bed together in a hotel. Sexual intercourse was not indulged in, but there would be kissing, playing with the breasts of the girls or the girls playing with the penis. He liked to play with his girl's breasts while he smoked the opium pipe. He preferred these girls to his wife because she was opposed to smoking.

The girls would participate in this activity even though some didn't smoke themselves, and then would ask for intercourse the rest of the night. He complied until his "muscles were sore" but did not enjoy it even though erections were maintained (no orgasms). In general when smoking, or later when injecting morphine, he avoided people, stayed by himself, slept more than otherwise, and had no interest in sex. When physically dependent, he worked only to obtain money for more drugs. He was not afraid of withdrawal symptoms. He regarded them as unpleasant but never as deterrents. He stayed off drugs at times, mainly to please his people.

When he was 33 and opium was scarce, he learned to use the needle and changed to morphine. This was more economical than smoking opium, but required more of his time. The effects were otherwise the same. Both of his arrests were "bum raps." Although he admits having been addicted both times, he says the evidence on which he was arrested was fabricated by law officers. After he served his first sentence for violation of the drug laws, he says he relapsed because he suddenly became deaf on awakening one morning. He was "disgusted" and took a "shot." He told the law officers that he took the "shot" because of pain in the ears. Later, he stated that at the time he became deaf, he was "kicking a habit" and had taken nembutals, which he blamed for his deafness.

B. *First Two Months of Re-Addiction*

On October 11, 1947 he was interviewed as usual with particular reference to any recollection which aroused visible affect. The only association which aroused any affective response, was a discussion of informers, whom he hated. However, he stated that he would not interfere with an informer who had not informed on him personally. The patient was then advised he could have a single "shot" of anything he wanted. He asked for and received 30 mg. of morphine intravenously. Immediately after injection, his skin was flushed, he rubbed his nose and appeared very happy. The flush subsided in a few seconds. On interrogation, he said the sensation was comparable to sexual orgasm. This lasted only a few seconds and was followed by a feeling as if he had had one or two drinks of whiskey. However he preferred morphine to whiskey, because, with morphine, the feeling lasted for hours, whereas to achieve this with whiskey he would have to drink repeatedly and become drunk. He did not like to be drunk because then he became sick and got into fights. A few hours later, he was interviewed. He was much more loquacious.

He said he now had "pep" and could do anything he wanted—go to a show, go for a walk or go to sleep. ("Pep" seems to mean freedom from anxiety about doing what he wants to do.) Spontaneously he remarked on what a nice day it was and then referred to several other patients who were sick or in trouble and were being "unjustly" treated. Thus, he said one patient had a ruptured appendix which wasn't recognized until he got peritonitis, and he

wasn't getting enough morphine. Another had "T.B.," yet was discharged from the hospital. Another got into a fight with a guard while drunk and now, "They're going to take his 'good time' away" (time deducted from his sentence for good behavior). Such productions occurred very frequently throughout the experiment when the subject was interviewed just after receiving morphine.

Reference was then made to the subject of informers. He denounced them heatedly, displaying as much or more hostility than before the injection. At the termination of the interview, he said, "Have a nice time doctor, and thanks for the surprise."

On October 13 he was again interviewed, with particular reference to his father whom he praised because "he gave me anything I asked." Little else was produced. He was then advised about the terms of the experiment, as already noted. He appeared elated, and then took two intravenous injections of 30 mg. of morphine each, about two hours apart. He was again interviewed later that afternoon. He felt at ease, happy yet "disgusted" with himself for going back on drugs. Then he referred again to the patients with peritonitis and "T.B." and also to a patient who got seven years and didn't even try to make parole. He referred to his youngest brother whom he had written to, requesting slippers. He wondered what they were going to have for supper. He was again advised that he needn't get "hooked." He replied that he wouldn't because he "won't take enough to get 'loaded'; some guys like to get narcotized; I don't I want to have pep and be able to do things."

On October 16, the next interview, he had to be awakened. Throughout the remainder of the study the patient spent practically all the time he was not working in bed, the radio on, reading newspapers and dozing off and on ("coasting"). He continued to do his work satisfactorily. On questioning, he stated he worked because it helped pass the time. (The work was filing cards—he actually worked about two hours a day.) He kept away from other patients, who were rather envious of him. His productions were repetitious, and spontaneous associations frequently had reference to food. Thus he recalled that his next younger brother met him on his last release and took him to a restaurant, and that then he went to his mother's house and had a good supper. He reported once that other patients told him he was talking about restaurants in his sleep.

On questioning, he spontaneously compared the feeling, before the next "shot" was due, to hunger, and the satisfaction afterward, to satiation of hunger. However, he still maintained he had to increase his dose because he wasn't getting the "hold" long enough, or intensely enough. On the other hand, he continued to get six or seven "thrills" (compared to orgasms) a day since he developed tolerance; and, in this way, being physically dependent was an advantage. He recalled that after he had once become physically dependent, he always felt as if some dear friend were missing during periods when he was not taking drugs at all. He described how, after his previous release from this institution, he was living at home, working as a truck checker in a brewery, spending his spare time in a bowling alley and going to shows, sleeping frequently at the apartment of a girl friend who cooked for him, but with whom he rarely had sexual relations, and feeling fairly well though not very happy. One day he met an addict on the street and instantly felt an intense craving for morphine which he had to satisfy by taking a "joy pop." He also stated several times that one reason people use drugs is that their use is illegal. During this period he had two dreams.

Dream No. 1. He was out with a girl friend, had a few drinks and woke up.

Dream No. 2. He was out of "Narco," visiting old friends with his girl friend; they were eating at some friend's house; they asked him if he would go back on "dope"; he assured them he wouldn't; then he awoke.

There were no apparent significant associations to either dream. In association, he spontaneously discussed the fact that he really means it when he says he is going to stay off, but relapses as soon as he has a chance. He wonders why. On interrogation after long silent intervals he stated that he wondered whether to get a "fix" (injection of morphine) now or later. The interviews then began to become rather sterile. Long silent hiatuses would occur. Questions regarding what the patient was thinking about at the instant, elicited the reply, "Thinking about you and me here; what questions you're going to ask next." Toward the end of the hour he would start talking about supper. This pattern was not changed by shifting the interview hour to earlier in the day after lunch. A total of 15 interviews took place during this period (23 in all up to this time).

C. *Last Two Months of Re-Addiction*

From December 9 to 19 inclusive, no interviews were held, since the investigator was out of town. On his return to the laboratory, it was learned that the patient had asked the director of research some questions as to how long the experiment was to continue and how he would be taken care of. (No information was given.) The patient greeted the investigator in a very friendly way and inquired about his family and his trip.

Spontaneously, the patient remarked that the rabbi had not seen him at services in a month and on learning that he was on a morphine study had said the patient was foolish for going back on "dope." The patient said he replied that he would probably be doing this on the outside. He also added that being on "dope" in the institution made the time fly; in the "population," time dragged. During the 11-day period of the investigator's absence, the patient had written down some of his thoughts and dreams. He had been thinking about an offer by his next younger brother for the patient to come to Detroit and take a share in his business, provided he stayed off drugs; also of an offer by his brother-in-law on the same basis. He felt he had better not accept the brother-in-law's offer because, if he relapsed, the brother-in-law would "take it out on his sister." He also had been dreaming a lot and had recorded some of his dreams.

Dream No. 3. He went to bed with a girl and woke up finding he had had an ejaculation. He recalled no further details, had no associations.

Dream No. 4. "I was with some fellows and they asked me to get some coffee from the restaurant, so I went there and asked the counter man for a large bottle of coffee, and he said he did not have anything to put it in; and I saw a vase sitting on top of the counter and I said, put the coffee in that and I would pay him for it; but he said, 'Just leave a deposit on it and I will return the deposit to you.' So on my way back there was some fellows standing on the corner and try to take it away from me, but I would not let them. When they saw I was going to fight, they left me alone. After I got back with the coffee I set the vase down and some girl picked it up, when I told her it was mine she said it belonged to the restaurant man and she would not give it to me, so I told the man the girl will bring it back and I am arguing with the man about the case."

In association, he recalled that 10 or 12 years ago he was visiting a girlfriend when some people came in with a vase all wrapped up and they were discussing it. It had a "pedigree" written on a piece of paper which was down in the vase, "16th or 17th century." He had wondered why they were so interested in it. Also he thought of vases in people's homes. In his own home there was a vase with flowers in it, and he recalled seeing his mother water the flowers in the garden on a nice summer day. The restaurant keeper in the dream was a heavy man in a white apron. He gave no associations to this, but, on questioning, he stated his father was a heavy man and had run a combination restaurant and saloon. There were no associations to the girl or the fellows in the dream.

Dream No. 5. "I was standing in the corner grocery store when my sister came in and she was wearing a raincoat and I ask her what she was doing out at 10 o'clock at night in this storming weather and she was six years old. And she said that she wanted some candy and everybody at home was sleeping and she got up and dressed very quietly and left the house. So I said I would take her home in a few minutes, and I was going to drive my brother down the street. When I came back to the store, it was closed and my sister was not there so I went looking for her." The only association to this dream was that his sister had written to him recently about her new home; he wished he could be there.

Recently he had increased his dose from 75 to 90 mg. intravenously because he said Dr. H. I. had "dared" him (Dr. H. I. states he had merely commented, "Is that all?" when he heard the patient ask for 75 mg. of morphine).

From this time until January 17, 1948, the patient was seen once weekly. He dreamed a good deal, and most of the interviews were occupied with the dreams.

Dream No. 6. "I was visiting a girl's apartment (at her suggestion) and she wasn't there. When she didn't come I got scared and I went up to the roof to go out the back way and I stepped over a ledge and saw it was too far to drop so I started to yell for help. Some fellow said, "What are you doing up there on that ledge? Come down the stairs." I thought the door to the stairs was locked but when I tried it, it was open, so I went down the stairs. I saw the girl when she told me to go to her apartment but not afterward. I don't know who the girl was." There were no significant associations to this dream.

Dream No. 7. "A cousin of mine says, 'I'm going to tell your mother.' I was crying real hard. When I woke up, I wondered if I was crying so I put my finger to my eye, and I was actually crying. Him I could see real plain, and I remember kidding him, 'Since when did you grow a mustache?' "

This dream disturbed the patient for several days. He couldn't figure out what it was the cousin was threatening to tell. Spontaneously he recalled that four years ago a girlfriend bought him a ring. He scolded her for paying so much; he could have gotten it for half of what she paid. She then swore she wouldn't ever buy him a thing again, and she kept her word. He says he should not have said anything. He hurt her feelings, and she's never gotten over it. He also recalled that he had received a Christmas card from his mother for the first time in his life—she'd always say, "Here's a Chanuka present." He said he always says he's going to stay off "dope" when he gets out, but never keeps his promise. He was surprised to get that Christmas card from his mother, and also from his sister-in-law.

Dream No. 8. He was released from the hospital but seemed to believe he had to return to "Narco" (the institution) before a certain time. He tried to call his girlfriend from several different telephone booths, but the operator said there was no number at that address or for that name. He finally gave up and returned to "Narco." There were no associations.

Dream No. 9. "I was with a fellow from this ward walking down the street and he said, 'Let's get a drink.' I said, 'Where?' and he said "In a blind pig I know.' We went, and a fat girl like a circus girl came in, and she sat down and began to play around and wanted me to go to bed with her. I didn't want to go, and said I had no money. She said it was $10 but no checks. So I was glad I got rid of her."

In associations he recalled that the fellow in the dream had given him a haircut the day before. The fat woman reminded him of circuses and carnivals. A fellow who had run a carnival had been admitted to "Narco" recently and had died two days before. In the dream, an elderly woman came in with the fat one and sat down on a couch.

Dream No. 10. He was driving in a car with another fellow, and the police were chasing him. They left the car and hid in a

friend's house. He was worried because he had only $3 with him.

There were no associations to this dream.

He had increased his dose of morphine from 90 to 100 mg. because he had a mild upper respiratory infection.

On questioning, he stated he would prefer being out of "Narco" without narcotics to being a prisoner with narcotics. However, he would prefer being in the institution on narcotics if his liberty were not taken away.

Dream No. 11. "I was sleeping in the apartment of a girl I used to go with in 1933 or so. As I walked into the bathroom, I saw her fixing a shot with an eyedropper. I saw the capsule and said, 'What's that?' and she said, 'Lou gave it to me.' Lou is a fellow I met in here lately who used to be in New York. I says, 'What are you taking a nembutal with your morphine for?' She says, 'Lou takes it and Lou says its alright.' I said, 'It'll make you crazy.' Lou says, 'No, it won't hurt her.' Lou and I argued."

In associations he recalled "Lou." He had met "Lou" in "Narco," and "Lou" had left two months ago. He had taken nembutal with morphine, and it had made him "goofy." The girl was a singer in a "blind pig" in Detroit in the '20's. He had lived with her for a few years while he was married and smoking. He had sexual relations with her occasionally.

Dream No. 12. Police were chasing him, there were no associations.

Dream No. 13. He was working for two gangs—one had control of bookmaking, the other of unions. Each was threatening him if he continued to work for the other. He asked the head man, who ran both, to let him make a living. He said, "You can't work for both sides." There were no significant associations.

Dream No. 14. "I was dreaming the other night that a friend of mine gave me a bundle of foreign money; and when I gave it back to him, a friend of his says to him, 'It isn't all here.' So I said, 'Go ahead and count it.' He counted it and he says to his friend that's what I give him. The other fellow says there was more than that. I says, 'Go straighten it out among yourselves.' The other fellow says, 'It's wrong.' So I jumped on the guy who gave the money and I says, 'I thought only you and I knew about it.' They kept on arguing and I said 'That's all he give me.' I kept bawling him out because all his friends knew about the money.

It seems it was foreign money. I kept thinking about it after waking up."

In association, the man that gave him the money was an old friend who was a bartender but had gotten into some difficulties recently because of stolen money. He and the patient used to buy morphine together. The other man, who said the money wasn't returned completely, was in the refrigeration business, not a drug user. He was about five feet, eight inches tall, weighed 180 pounds, was about 38 years old, clean shaven, light complexioned, "Looks like somebody who works for you." (The investigator himself?)

The patient stated he was happy, took 115 mg. each "shot," got the same "thrill" each time, but the effect did not last as long. He was informed that no drugs whatever would be given after midnight February 15, 1948. (This was on January 17.) In the meantime, he would be able to take himself off as he wished. Advice would be given freely on request, but he had to ask for each injection himself. The patient then asked for advice. He was told he should change to subcutaneous injections, reduce the dose to 60 mg. for a few days, then change to 15 to 20 mg. of methadone and then cut down to nothing within the next two weeks. He would then have 11 days for "pickups" if needed.

D. *Reduction Period*

During the first week of this period, he increased the frequency of the 115 mg. dose to 12 times daily. He stated he intended to start reducing on February first. He had dreamed but couldn't recall any dreams. He thought the interviews were over. He expected to get sick but didn't fear withdrawal. He hated the thought of going back to "population," with all the noise in the dining rooms. He also figured out that the deadline should be February 16, not 15, since he had been promised a notice of "one month." This change was granted.

He could recall no further dreams, attributing this to noise on the ward. Reduction of dosage was actually begun February 2, 1948 by changing to methadone. The patient talked little spontaneously. He stated he was getting no pleasure, that he was weak and sweaty and slept a few hours at a time but had no aches, vomiting, pains or other symptoms. He was somewhat depressed because of the thought of giving up morphine and going back into the general population. He preferred morphine to methadone and

would rather have come off morphine by reduction. On February 9, he had reduced the dose to a total of about 35 mg. of methadone, but increased the dosage the next day. This he blamed on a toothache, which was made worse, not better, by additional "shots." After the tooth was extracted, he remained on methdone and made no further attempt at withdrawal. He now took the methadone intravenously, because he had heard that once a patient was on methadone, morphine did not have its usual effects. He would have to ask for four or five graine of morphine to get any effect and he was ashamed to do so. He would not try less because it was a shame to waste the morphine. He would have preferred a reduction on morphine alone. He seemed more cheerful now, but exhibited hostility and contempt toward the psychologist and also toward the investigator.

Immediately after completion of the interview the patient changed back to morphine (February 14) and rapidly built up his dose so that on the last day he was taking eight intravenous injections of morphine totalling about 1,000 mg. (15 grains) and before midnight February 16, he took two 15 mg. doses of methadone. On questions regarding why he had relapsed to morphine he stated that the investigator had told him morphine was all right, although he had been told by patients it was no good after methadone. There were 10 interviews during this period (a total of 33 thus far).

E. *Post-Reduction Period*

The first week after the last injection was marked by quite severe withdrawal signs: mydriasis, rhinnorrhea, pilo-erection and sweating were present; he stayed in bed continually, covered with blankets and his bathrobe. He ate nothing at all. On urging, he drank some milk which he promptly vomited. (He pointed this out to the investigator who had suggested the milk.) He was irritable, talked little and reported no dreams. He stated that he relapsed from methadone, because he thought it was too late after he had taken several "shots" for his toothache. He could give no explanation for reduction by methadone substitution in the first place. He thought it was to avoid withdrawal signs but could not explain why he had relapsed to morphine and built up his daily dose to 1,000 mg. in the last three days.

(It may be of some significance that a short time prior to this study, the investigator had taken part in a detailed study of methadone, which, at that time, was a new synthetic analgesic agent.)

During the second week, the patient began to eat but said he couldn't sleep. He offered to submit to other tests to get a "shot" of morphine. This was denied. He offered to submit to tests in the future without "payment" if he could get "a shot now," but this also was refused. An attempt was made to begin psychotherapy, using the material thus far obtained. This was made known to the patient. A few days later, he reappeared "angling" for a "shot" again, and stating that he might get something out of the material if he could get an injection, since he would feel good. Without a "shot," he would feel "disgusted" and would ignore the material. The impression was gained that he meant that he was testing the investigator's concern for him. If he was granted a "shot," it meant the investigator cared about him. However, no injections were given.

After three weeks, he asked to be returned to the general population. A few weeks later, after his eligibility for tests had expired, he was called down for an EEG. When he learned that he would not be "paid off," he became indignant and warned that this was the last time. After that, he would submit to no tests without payment in some way.

Before he left the population, he was informed that he would be welcome to see the investigator for psychotherapy any Saturday morning from 8 to 10. He did not return.

Discussion

For the present purposes, a psychodynamic frame of reference will be described which has been found to be useful in describing the effects of drugs on the human organism. Conation may be defined in terms of "primary" and "secondary" needs. By "primary needs," are meant those subjective experiences which are related to adaptive responses of the organism to the non-personal aspects of changes in its internal and external environment. Such responses are largely "unconditioned" and include hunger, fear of pain, and sexual (general erotic) urges. By "secondary needs," are meant those subjective experiences which are related to adaptive responses of the organism to the personal aspects of changes in its internal and external environment. Such responses are de-

veloped as means of satisfying "primary" needs. They are largely "conditioned," and include a variety of "personality characteristics," such as dominance, passivity, dependence, independence, sadism, masochism, narcissism and altruism. In individuals, some "primary" needs may be more intense than some "secondary" needs, and the reverse may be true also. In the process of maturation, "secondary" needs may become quite detached from "primary" needs. The personality pattern is developed through "mechanisms" such as identification, rejection, introjection, projection, displacement, condensation, reaction formation, repression, and internalization of parental (and social) punitive and permissive attitudes. These "mechanisms" serve the purpose of satisfying both "primary" and "secondary" needs, and may continue to operate for variable lengths of time through habit formation, even when the needs themselves have been reduced in intensity. Terms such as "hostility," guilt and "anxiety" are regarded as symptoms, rather than "mechanisms." Finally, all the processes referred to may be partly conscious and partly unconscious.

In evaluating the subject's pre-addiction personality, some caution must be exercised in the utilization of data obtained from himself, since the nature of his productions, associations and fantasies may have been determined to a considerable extent by his experience with drugs. As has been pointed out, such difficulties are inherent in all "retrospective" investigations. However, the anamnestic data indicate that prior to his use of narcotics, the patient had been unable to develop mature interpersonal relationships based on altruism ("object-love"), but had developed instead immature interpersonal relationships based on needs, such as dependency and narcissism, which were excessively intense.

The data obtained during experimental addiction to morphine show clearly that opiates became attractive to the subject because of their remarkable ability to satisfy his "primary" needs. Thus morphine diminished hunger, reduced fear of pain and depressed sexual urges. The effects of morphine on hunger are well known. The gratification of this "primary" need by the drug is illustrated by the frequent references to enjoyment of food in the subject's productions early during the addiction period. That morphine relieves fear of pain is also common knowledge. Indeed, experimental evidence indicates that in man, the analgesic effects of morphine are largely due to this action.[7]

The effects of morphine on sexual urges are more complex. Although the subject felt no desire for sexual relationships after morphine or opium, he was able to maintain penile erections for long periods after the use of such drugs. In this way, he was able to satisfy his female companions, whom he valued chiefly as a means of satisfying his dependent needs. Also, by the use of the intravenous route for the injection of morphine, he was able to experience "thrills" which he compared to orgasms, although the climactic sensation was centered in the abdomen. Such sexual gratification could thus be achieved without involving the subject in interpersonal relationships that would require some contribution on his part. The importance of such experiences to the patient is suggested by some of his dreams, in which women appear to demand his sexuality, either as such, or symbolically.

With the development of tolerance and physical dependence on the drug, all of the gratifications diminished, except that of the "thrill" (orgasm) which was experienced after intravenous injection of morphine. However, a new source of gratification was experienced through satisfaction of the artificially-induced need for the drug itself, which, in part at least, assumes the character of a "primary" need.[8] Frequently, the patient compared the experience of mild withdrawal changes with that of hunger, and the effects of morphine thereon, with satiation. Rather than acting as a deterrent to its use, the "physical dependence" produced by repeated injections of morphine appears to be one of the drug's attractive properties, since it provides a new source of gratification. In some instances, the new "pharmacogenic" need may become intense enough to displace other "natural" primary needs.

In addition to the satisfaction of the subject's "primary needs," the use of opiates also served the purpose of expressing hostility indirectly toward authoritative figures. Thus, he recalled that at one time he relapsed to the use of narcotics when he felt resentful because he was arrested on what he termed a "bum rap." Also, he remarked that he would be glad to become a subject for experimental re-addiction to morphine, since this would enable him to "cheat the government out of some time."

In spite of the highly narcissistic nature of this subject, feelings of guilt were not absent in this study. After verbalizing his gratifications after injections of morphine, he frequently compared his happy state with those of more unfortunate fellow-prisoners. He

felt embarrassed when his absence from religious services was noticed, because he had to inform the chaplain that he was back "on drugs." Also, he felt ashamed to write to his relatives, because they didn't know he was using narcotics again. Such reactions appear to have played a role in his choice of abrupt withdrawal from morphine, since the suffering which he subsequently experienced may have served the purpose of alleviating feelings of guilt. The similarity of the morphine addiction-withdrawal process to manic-depressive psychosis has been pointed out by Rado.[5]

Of interest also, is the fact that the use of morphine had little effect on the patient's "secondary" needs, since the narcissistic-dependent pattern of his personality remained essentially unaltered throughout the study. Analogous findings have been reported in dogs.[8]

These inferences suggest answers to the questions which prompted this investigation. Apparently, what the addict means by "normal" is a state of gratification of "primary" needs. Simmel[6] has stressed this fact in relation to gratification of "oral narcissistic cravings." However, it is evident that morphine may gratify other needs of a "primary" nature. The degree to which morphine can produce such gratifications varies. The term "euphoria," as used by addicts, appears to reflect complete gratification, and is therefore only quantitatively different from "normal" in the sense in which this term is used by them. The attractiveness of "euphoria" to any individual appears to be inversely related to the degree to which primary needs can be satisfied by means other than the use of opiate drugs. Whether a given individual will use such drugs repeatedly, depends on the relative strength of such alternative means as are available to him for the satisfaction of his "primary" needs. Of importance also, in determining the addiction of individuals, is the attitude of society toward the effects of drugs. In Occidental cultures, opiate addiction is more strongly condemned than alcohol addiction. In Oriental cultures, such as the Chinese (but not the Japanese), the reverse is true. Such divergent attitudes may, perhaps, be explained on the basis of the widely differing symptomatic effects of alcohol and opiates, and of the cultural attitudes toward such symptoms. Opiates appear to gratify "primary" needs directly. They also tend to "release" stable (though not necessarily "normal") reaction patterns, but this is more than counterbalanced by the reduction of motivation.

"Repression" is therefore little impaired, or may even be strengthened, by opiate drugs. On the other hand, alcohol gratifies primary needs not directly (it actually enhances sexual urges) but indirectly, through powerful depressant effects on repression, which results in "release" of mechanisms which are designed to satisfy both primary and secondary needs. Often these include various manifestations of aggression. The association of alcoholic intoxication with violence is too well known to require further comment. The difference in the effects of alcohol and opiates on overt expressions of aggression have been summarized aptly in the remark that "the alcoholic takes a drink, goes home and beats his wife; the narcotic addict takes a 'shot,' goes home and his wife beats him."[9] Similar contrasts in the effects of these drugs may be observed in relation to homosexuality. The urge for direct gratification of homosexual needs is reduced by opiates; alcohol, on the other hand, reduces the ability of the homosexual to suppress his need for direct gratification; it appears also, to enhance the erotic urge itself.

These contrasting effects may be considered in relation to differring cultural attitudes toward the expression of aggression. In Occidental cultures, a moderate degree of expression of aggression is valued highly, in the form of competitiveness in socially-productive activities, competitive and rather violent sports, hunting, etc. One popular concept of a "he-man" is that of a clean-cut, two-fisted gentleman with a pugnacious jaw, who is "quick on the draw" and can "hold his liquor." In such cultures, alcoholic intoxication is often regarded with amusement, since the behavior of the "fighting drunk" is in many ways, a caricature of the "gentleman." On the other hand, the placidity and reduced aggressiveness which opiates induce, represent the antithesis of the "gentleman" ideal, and are usually regarded with contempt. Traditional (e. g., Confucian) Chinese attitudes are quite the reverse. Placidity and repression of open aggression are highly valued, while competitiveness and indulgence in the more violent competitive sports are usually disparaged. Alcoholic intoxication is therefore regarded with more abhorrence than opiate addiction. Significantly, Japanese cultural attitudes toward the overt expression of aggression, and toward alcoholism and opiate addiction are more like those of the Occident.

Similar differences in attitudes may be found in the case of Jews who have been reared in traditional orthodox Jewish environments,

and those who have been "assimilated." As Samuel points out,[10] the overt expression of aggression has always been condemned in the traditional Jewish culture, while the impact of "assimilation" has tended to alter such attitudes. In the experience of the author, as well as that of others, the incidence of chronic alcoholism is low among Jews of orthodox background, compared to the incidence of opiate addiction. The reverse seems to be true in Jews of "Reform" or non-religious background. It is of interest that the subject of the present investigation, who was of orthodox Jewish background, disliked alcohol because it "made me drunk and got me into fights." Cannabis, in the form of hashish, may serve as a substitute for alcohol in cultures which interdict the use of the latter on religious grounds (e. g., among Mohammedans). In recent years, chronic barbiturate intoxication seems to have increased in the United States. Clinically, the effects of cannabis and the barbiturates resemble closely, those of alcohol.

The individual personality, the specific effects of single and repeated doses of morphine, and the cultural attitudes toward opiate addiction, contribute to the etiology of narcotic addiction. Theoretically, the behavior pattern of the narcotic addict may be viewed as the resultant of competing motivations, which in turn are related to the intensity of "primary" and "secondary" needs and the habit pattern of utilizing certain mechanisms to satisfy them. For example, individuals who have been unable to satisfy their needs by any means, are more apt to become narcotic addicts, since the drugs can satisfy their "primary" needs directly. In others, partial satisfaction of needs may have been achieved through various mechanisms, regardless of whether they are "normal" or "neurotic." Thus many habitual criminals, and persons whose neurotic defenses are adequate, are not apt to become narcotic addicts, nor are socially-acceptable, mature individuals.

Similar factors determine the degree of social productivity which is compatible with active narcotic addiction. In the subject of this study, morphine addiction was associated with a gradual decline in such social productivity as was possible in the experimental situation. This might have been expected, since there was no evidence to indicate that this individual had been able to satisfy his needs through socially-productive activities—even before his experience with drugs. On the other hand, physicians have been known to continue successful practices while actively addicted to

opiates for long periods of time. It is even conceivable that the use of narcotics, to satisfy "primary" needs *partially,* may enable some individuals to complete the satisfaction of such needs by socially productive activity, whereas this could not be achieved without the use of drugs because, perhaps, of the great intensity of their needs. The ultimate factor which determines the motivation to use narcotic drugs repeatedly and which determines the degree of social productivity which is compatible with it, may therefore be the relative intensity of such anxiety as results from inadequate satisfaction of "primary" needs, through mechanisms which may be either "normal" or "neurotic." However, the artificial "primary" need which is developed after the continued use of such drugs may become the paramount motivating factor in the addict's existence and may thus induce steady regression regardless of the level of maturity which has been attained prior to addiction.

Summary and Conclusions

1. A psychodynamic study was made of a patient with a previous history of drug addiction, during experimental re-addiction to morphine in a controlled environment. Material for interpretation was obtained by observation of his behavior, direct interrogation, recording of spontaneous productions, free associations, and dreams.

2. Subjective experiences following injections of morphine appear to be related to direct gratification of "primary" needs, such as hunger, fear of pain, and sexual (general erotic) urges. The terms "normal" and "euphoria" as used by addicts, reflect relative degrees of completeness of such gratifications.

3. When "tolerance" to such effects of morphine develops, such gratifications are diminished, but a new source of gratification becomes available through the concomitant development of "physical dependence," which assumes the character of a "primary" need that can be satisfied only by morphine-like drugs.

4. The use of morphine in our culture may serve also as a means of expressing hostility indirectly, though feelings of guilt may also develop. The suffering attendant upon abrupt withdrawal of morphine may serve the purpose of expiating such guilt.

5. "Secondary" needs are relatively little affected by morphine, except through the gratification of "primary" needs. Hence the "personality pattern" of the addict usually undergoes only quantitative changes as a result of the use of morphine, though legal-

economic factors may alter the process. However, strong, "physical dependence" tends to promote regression.

6. While morphine tends to "release" stable (not necessarily "normal") reaction patterns, this effect is more than counter-balanced by reduction toward dependency of motivations. "Repression" is therefore little affected by the use of morphine. This is in marked contrast to the effects of alcohol.

7. Divergence in cultural attitudes toward alcohol and opiate addictions are correlated highly with divergence of cultural attitudes toward the overt expression of aggression. This is discussed with reference to the contrasting effects of alcohol and opiates on individuals.

8. The genesis of morphine addiction and the degree of social productivity which is compatible with active addiction are discussed in relation to the dynamics of personality development, the effects of morphine and prevalent cultural attitudes. The ultimate determinant of the motivation to use morphine repeatedly appears to be the relative intensity of such anxiety as is consequent to the inadequate satisfaction of "primary" needs, through mechanisms which may be "normal" or "neurotic."

Addiction Research Center
Public Health Service Hospital
Lexington, Ky.

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