Though, as one ILGB researcher put it, there is now a "Cold War" between those who took part in the 38-day occupation and those who didn't—the size of each group and their relative importance are also matters of contention—there seems to be general satisfaction with Patrissi's performance in restoring tranquility to the laboratory. Further trouble looms, in connection with his efforts to involve ILGB in the government's design to promote closer ties between Italy's universities and the autonomous laboratories of the NRC. Operating as it did on international standards, and headed by Buzzati-Traverso, who openly proclaimed his disdain for the universities' brand of biological research, ILGB was an affront to most Italian academics working in that field. Thus, the prospect of being put in the administrative care of the feudalistic University of Naples is not appealing to those who were drawn to ILGB by its emulation of the more successful examples of American research and training.

Has ILGB been restored to scientific productivity? You can get a good argument on that. There are those who say that the laboratory is scientifically dead and discredited among its foreign associates, and that, as a consequence, people interested in research are trickling away. These views are naturally most strongly held on the right, which sees nothing but disaster flowing from the left-wing uprisings. The Commissario's office has compiled statistics comparing staffing on 1 January 1969 and 1 March 1970. The numbers show that a lot of people have left. On the earlier date, for example, there were 50 Italian and 14 foreign researchers in residence. In March, the respective numbers were 27 and 5. The decline is not quite as great as it seems, since, during the period in question, seven Italian and three foreign researchers were transferred to ILGB's associated laboratory at Pavia. Nevertheless, the drop is a considerable one among senior researchers, as it is among fellows. In the latter group the number of Italians declined from 6 to 3, and of foreigners, from 2 to 0. The left contends that the figures are distorted because an unusual number of staff members are away on routine sabbaticals or long-term travel. It also says that, when allowance is made for the immobilization of the laboratory during last year's occupation, productivity in terms of published papers will be approximately normal. The right says that, if this turns out to be the case, it will only be because of the reworking of old material. Since an appearance of semi-idleness is not uncommon in academic science, it is difficult for a casual visitor to conclude what, if anything, is going on. Several politically uninvolved researchers say their work is proceeding satisfactorily, but they point out that this is so despite the "situation."

The researchers who led the revolt at the laboratory express themselves as pleased with the outcome. There are some regrets among them about Buzzati-Traverso's departure, for it is recognized that he founded and built ILGB to a high standard in defiance of the university "barons." But many of those who set off the uprisings at ILGB consider themselves part of a worldwide revolutionary movement, not simply part of a campaign to reorganize one laboratory. Within that laboratory, however, they number their accomplishments with some satisfaction. Since the elimination of class and status characteristics has become a key theme among Italian scientists of the radical left, ILGB's contingent successfully agitated for elimination of the time clock, which technicians, but not researchers, were required to use. Salary increases are no longer on a percentage basis, but are the same in amount for all. Increases on the basis of merit have been virtually eliminated.

Will IGLB survive in a condition resembling its old-time status? Many doubt that it will. They point out that Buzzati-Traverso is not easily replaceable; that the embrace of the University of Naples could easily be fatal; that several NRC-supported basic biology laboratories in the Naples area have lately been showing scientific strength; and, finally, that the radical left is less concerned with the scientific future of ILGB than it is with far more grand political goals.

At present, a search for a successor to Buzzati-Traverso is said to be in progress. And there is talk of attempts to bring in one or another well-known American scientist of Italian descent in an effort to restore luster to ILGB's international image. But, with the government in Rome just emerging from one of its repeated breakdowns and with NRC in a sort of limbo, with a president whose term expired over a year ago, uncertainty is the dominant theme.—D. S. GREENBERG

Methadone and Heroin Addiction: Rehabilitation without a "Cure"

Efforts to rehabilitate heroin addicts have had generally discouraging results, but in recent years experimental treatment programs based on use of the synthetic analgesic methadone have offered the most solid promise of practical help for large numbers of heroin users. Because methadone treatment involves the substitution of one form of narcotic addiction for another, there has been a backstairs wrangle within government over how the narcotics laws can be reconciled with large-scale methadone treatment programs.

When administered regularly to heroin addicts, methadone blocks the euphoric "high" associated with heroin use. Experimental programs, notably in New York City, have reported impressive results: addicts have stopped using heroin, have taken regular jobs or returned to school, and have broken the pattern of antisocial behavior characteristic of so many addicts.

The hope of rehabilitation is generating strong pressure on authorities to ease restrictions on physicians using methadone in the long-term treatment of heroin addicts. And, in fact, a heroin "epidemic" has caused the rapid expansion of methadone treatment of addicts in circumstances often of doubtful legality. Methadone is now classed as an investigative drug for long-term treatment of addicts and can be used legally only in federally approved research programs. But so desperate is the plight of heroin addicts that many individual physicians are prescribing for large numbers of addicts without careful supervision or real effort at following research protocols.

The participant in the methadone "maintenance" programs receives a daily dose of the drug for an indefinite period, and the operative assumption is that, should the methadone treatment be interrupted, the person will start using heroin again. Methadone, therefore, offers rehabilitation without a "cure."

Federal resistance to modification of the restrictions on methadone use doubtless is based in part on the traditional resistance of federal narcotics law enforcers to addiction "maintenance" programs. But the prospect of large-scale methadone programs does raise some fairly difficult control problems.

Methadone is now legally approved and used fairly widely for two purposes: (i) as a pain-killing analgesic and (ii) as perhaps the most satisfactory agent in detoxifying or "withdrawing" heroin addicts. The drug is readily obtainable by physicians who use it for the approved purposes and who comply with the provisions of the narcotics laws. The current problem arises because use of methadone in long-term treatment programs legally constitutes a "new use" for the drug, and this requires that the Food and Drug Administration (FDA) consider it for safety and efficacy before it is approved for broad use.

Because methadone is a narcotic, the Bureau of Narcotics and Dangerous Drugs (BNDD) in the Department of Justice is also involved in setting the terms under which methadone is to be used in addict-treatment programs. For some time, work on new regulations has been carried on by officials of FDA and BNDD and of their parent agencies, the Department of Health, Education, and Welfare (HEW) and the Department of Justice. Also involved is the National Institute of Mental Health, which has been designated to take the lead in federal research on narcotics addiction and rehabilitation.

In mid-April, HEW assistant secretary for health and scientific affairs Roger O. Egeberg told a Senate subcommittee that regulations easing the restrictions on methadone would be issued in a few weeks. In reporting Egeberg's remarks, however, newsmen quoted Egeberg in a way that overstated his own and his department's position. The lead of the wire service story carried by *The New York Times* and other papers said, "The Nixon Administration indicated today that it would soon let doctors switch heroin addicts to regular doses of methadone, a cheap and relatively harmless heroin substitute," and then went on to quote Egeberg as saying "it will be seen that a doctor who is interested in carrying his patient on methadone can get such permission rather easily."

The quote was accurate enough, but by failing to place it in broader context the report perpetuated some fairly common oversimplifications about methadone. Faced with the literally hopeless situation of so many heroin addicts, some partisans of methadone treatment endow methadone with almost magical properties and journalists have tended to follow their lead.

NAS Again Says No to Shockley

For more than 4 years now, William Shockley, a Stanford physicist who shared a Nobel Prize for his part in inventing the transistor, has been carrying on a dogged campaign to have the National Academy of Sciences encourage research in "dysgenics." As he defines it, dysgenics has to do with the "retrogressive evolution" of a population through the reproduction, in disproportionately large numbers, of its genetically inferior elements. Specifically, Shockley is afraid that the U.S. population is declining in quality through the reproduction of large numbers of Negroes of low I.Q., a view which he says can in no sense be ascribed to a "rascist" motivation. Last week, the academy rebuffed Shockley's latest attempt to have it go on record as favoring dysgenics research. His proposed resolution to that effect was not seconded. He found some satisfaction, however, in the as yet unreleased report of an academy committee.

This committee was appointed by Philip Handler, president of the academy, after an academy meeting last October at which Shockley had again raised the dysgenics research issue. Kingsley Davis, a sociologist at Berkeley, was named chairman. According to Shockley, the report of the Davis committee, which the academy received but took no action on, acknowledges that study of racial and hereditary differences is "proper and socially relevant."

Difference in Viewpoints "Enormous"

"The report indicates that members of the committee 'variously' regarded the impact of suppressive attitudes on research in this area," Shockley told *Science*. "The difference in viewpoints on research taboos about human quality problems are enormous in my opinion. I think the word 'variously' does not portray this."

Shockley added, however, that "my general reaction is that this report represents enormous progress over the one issued in 1967." Here Shockley was alluding to a 1967 report of the academy which concluded in part by questioning "the social urgency of a crash program to measure genetic differences in intellectual and emotional traits between racial groups." "In the first place, if the traits are at all complex [as the report had said they would surely be], the results of such research are almost certain to be inconclusive," this report said. "In the second place, it is not clear that major social decisions depend on such information; we would hope that persons would be considered as individuals and not as members of groups."

Shockley is himself doing some dysgenics research by surveying available data. At the academy meeting last week, Joel C. Hildebrand, professor of chemistry emeritus at Berkeley, moved that the academy declare it out of order for anyone to seek academy sponsorship for one of his own research projects. His motion was tabled, however. Hildebrand, who last fall offered the motion leading to the appointment of the Davis committee, dismisses the report of that committee as "worthless for the purpose of making clear to the public that Shockley's proposals are essentially unscientific and antisocial." The report is now under review by the academy.—L.J.C.

It is true that, when obtained legally, the cost of a daily dose of methadone per patient is roughly that of a cup of coffee. But the total costs of an effective methadone treatment program runs between $1500 and $2000 a year per person. And the implication that a physician will be able to prescribe methadone for the individual addict rather in the way he might prescribe insulin for a diabetic is one that narcotics law enforcement officers decry.

The Prototype Program

Perhaps the best way to appreciate the complexities of the methadone treatment question is to consider the pioneering program established in New York by Vincent P. Dole, a physician and medical researcher, and Marie E. Nyswander, a psychiatrist. The program was started experimentally at Rockefeller University in 1963 and later moved to Beth Israel Medical Center, and about 2000 addicts have so far been treated.

The New York experience has been of crucial importance—first, because it established a firm scientific base for methadone treatment programs and, second, because it attracted legal and political support which helped it to survive the suspicion and hostility of law enforcement officials opposed to addict maintenance programs.

One of the obstacles to serious research on narcotics addiction has been the absence of reliable data on addicts. In the Dole-Nyswander project, heavy emphasis from the beginning was placed on keeping detailed records on patients, and information on more than 2000 persons is now available in a computerized data center. Early in the project, Dole, whose expertise is in research on lipid metabolism, and his colleagues developed a urinalysis procedure that made it possible to determine whether patients in the methadone program were also using heroin. Detection of barbiturates in the system is now also possible.

The first patients in the methadone treatment program were confirmed addicts over 20 years of age with histories of 5 years or more of heroin use and a record of treatment failures. The age limit was subsequently lowered to 18, but very young heroin users are not accepted in the program, in part because the shift to methadone implies sustained use.

An important feature of the New York program is that it is hospital-based. Most general and psychiatric hospitals have in the past been reluctant to operate addict treatment programs because addicts are difficult patients, prognoses are unpromising, and such programs often brought harassment or the threat of prosecution from local or federal narcotics officers.

The New York program provides initial physical examinations and treatment for addicts, who are usually in poor health, job and education advice, and supportive counseling from staff members, some of whom are themselves former heroin addicts. Two key requirements for accepting patients are that they volunteer for the program and that they do not use drugs besides heroin in significant quantities.

Methadone is administered in an oral form, and after patients have reached a stabilized dose level, they are given prescriptions for methadone in pill form. They are required to visit clinics periodically for urinalysis check.

The New York program defines success primarily as bringing the patient to the point where he is off heroin and living a life free of crime and other antisocial activity. Records show that the program has been successful for 82 percent of all people accepted. Many of them are leading socially productive lives and are holding jobs or have returned to school.

Critics of methadone treatment generally do not aim their shafts at the New York program or other tightly supervised research programs. They invoke the prospect of the free-style prescription of methadone by individual physicians responding to the plight of the rapidly increasing number of heroin users. They point out that methadone does not really work satisfactorily for persons who use other drugs besides heroin and who may, in fact, simply add methadone to the mix. They note that some heroin addicts with expensive habits have learned to use methadone to detoxify themselves in order to reduce their tolerance for heroin so that they may resume heroin use at a low dosage. And they warn that, if methadone is made more readily available, heroin users who are not truly addicted, particularly very young people, may be given treatment that will make them methadone addicts.

The traditional enforcement view represented within the BNDD is that making the relatively cheap methadone more readily available will mean illegal diversion of the drug and the creation of new addicts. Giving increased power to the physician to prescribe methadone for treatment, it is felt, would mean a misuse of that power by some either through misplaced compassion or a cynical impulse to profit. The bureau is trying to discourage the idea that methadone is a cure for heroin addiction and is obviously fighting to limit the prescription of drugs to those involved in treatment programs, presumably with controls similar to those in the New York program.

Looking for a Compromise

Federal authorities seem to be searching for a formula that will permit a response to the heavy demand from almost every major city in the United States for permission to operate methadone treatment programs but that will at the same time maintain controls over the drug of the kind pertaining to investigational drugs. Giving methadone the status of a marketable new drug, even with special restrictions on use, appears to have been ruled out.

FDA's position on methadone treatment is that, so far, safety and effectiveness have not been demonstrated for the new use of the drug. Methadone is apparently to be continued in its status as an investigational new drug (IND)—that is, it can be used only in approved programs that meet departmental criteria for research on humans. There are now more than 60 IND's in effect and others in the works.

It is difficult to reconcile the existing food and drug laws and narcotics laws with the embarrassing possibility that within a relatively short time thousands and thousands of persons may be under long-term treatment with a drug that is still not officially classed as safe and effective.

How federal authorities will meet the dilemma should soon be indicated, when new regulations are published. The prospect is for a statement of policy representing the joint views of the responsible agencies, followed by regulations governing the medical aspects of the use of methadone produced by FDA and by regulations governing security and diversion written by BNDD in the Department of Justice.

These regulations and the manner in which they are enforced will be of particular interest as a test of whether or not there is to be a significant change in the federal approach to treatment and rehabilitation of narcotics addicts.—JOHN WALSH