

CONTRACTED TRAINING OF JAMAICANS FOR SKILLED- TECHNICAL JOBS

*a report on a new plant
start up project*

Meeting the skilled-technical hourly work force requirements for the construction and maintenance of a quarter billion dollar automated industrial plant is at best no simple task. When the plant site is in the rural countryside of a historically agricultural, new and developing nation like Jamaica with existing shortages of skilled and technical manpower, the task becomes a challenge. Meeting this challenge by the obvious means of bringing needed workers into Jamaica is ruled out by Government restrictions on the employment of non-Jamaicans ¹

These were the needs and the conditions facing the Alumina Partners of Jamaica ² (Alpart) as they anticipated establishing their plant in the Parish of St. Elizabeth at Nain near the south-central coast of Jamaica. This location with all of its manpower problems was chosen because of its proximity to deposits of bauxite and because of its accessibility to Port Kaiser for shipping the product, alumina (aluminum oxide), and for bringing in fuel and other material needed for the process.

Plant site clearing and grading started in December 1966 and plant construction started early in 1967. These dates are significant in terms of the means employed to satisfy skilled manpower requirements and the timing of the activities.

DUNWOODY CONTRACT

In October, 1966, Alpart contracted with Dunwoody Industrial Institute to conduct a nationwide manpower survey and to recommend a plan for training. Dunwoody is a not-for-profit, endowed private educational institution established at Minneapolis, Minnesota, in 1914 ³. Since 1952, its International Services Division has provided technical assistance in a score of countries throughout the world for the U.S. and foreign governments, private foundations and industries.

On the basis of this survey and a recommended plan of action, Alpart and Dunwoody Institute entered into an

agreement to establish an Industrial Training Center and to develop appropriate training materials. The shops and classrooms of the Alpart Training Center for Developing Industrial Skills were the first buildings to be completed on the plant site. Appropriate training equipment was installed, furnishings and supplies were procured, and training was started in November 1967.

During the first phase, Jamaican citizens were trained for skilled work on plant construction: welding, electrical and pipefitting. Selected Jamaicans were provided a "training allowance" by Alpart while in training. Once trained, they were employed at Alpart's insistence by contractors engaged in plant construction.

This first phase continued until June 1968. During the eight-month period, each of over 190 Jamaicans was trained for 200 hours in one of the three specialized areas. The training schedule, typically, included ten hours per week of job knowledge technology and 30 hours per week of practical training in the Training Center shops. Some men were also cross-trained in two specializations, such as welding and pipefitting. Altogether during this phase approximately 40,000 man-hours of training were provided in these three construction specializations.

PHASE TWO

After this first phase of training was completed and while plant construction continued, the Dunwoody staff prepared for Phase Two of the training. This second phase was to provide the basic training of a Jamaican hourly skilled work force to maintain and service the plant after it went into operation.

During the several-month interim period between Phase One and Phase Two, the Dunwoody staff revamped the training facilities to suit the new training, developed instructional materials, recruited and trained a non-Jamaican instructional staff and tested Jamaican applicants for maintenance trainees. A test battery was developed and administered

EDWARD K. HANKIN
Professor
Division of Vocational Education
College of Education
The University of Georgia
Athens, Georgia

to 590 applicants who previously had been screened from over 1200 applicants. Of these, 165 were selected by Alpart. Selection priorities were applied on the basis of proximity of residence to the plant site and appropriate previous schooling or other experiences. While the initial purpose was the development of an hourly maintenance work force, this selection of trainees also reflected Alpart's intention to promote supervisors out of the hourly work force. Hence consideration also was given to educational and other qualifications indicating potential for such advancement.

In the second phase, three major types of maintenance workers were trained: mechanical repairmen, instrument/electrical repairmen and mobile equipment repairmen. Those who were to become mechanical repairmen were given basic training in welding, pipefitting, millwrighting, metal machining and the like, with the job title of General Repairman Trainee. Instrument/electrical repairman basic training included direct and alternating current fundamentals with applications, industrial wiring, basic electronics, industrial electronics, and fundamentals of instrumentation. Mobile equipment repairman training covered fundamentals for the maintenance of both heavy and light duty units, such as, pickups, dozers, mine trucks and power shovels. Their job title was General Equipment Repairman Trainee.

Training in Phase Two started in August, 1968, and continued until the plant became operational in May, 1969. During this period the trainees were in attendance at the Center 40 hours per week for shop, laboratory and classroom instruction. A total of 152 Jamaicans completed this training and were thereupon reclassified as Advanced Repairmen Trainees. Of these 89 were General Repairmen Trainees, 32 Instrument/electrical Repairmen Trainees, 23 General Equipment Repairmen Trainees and 8 Metal Machining Repairmen Trainees. Since this reclassification, 17 of these men have been promoted to the salaried position of Supervisor.

PHASE THREE

The third phase of the training program began in June, 1969, after the plant started operating. It includes the basic training of additional newly-hired trainees and advanced training for those who completed the period of basic training.

The basic training in Phase Three is similar to that provided in Phase Two but streamlined and modified, partly on the basis of experiences gained in Phase Two and partly because of the opportunities for on-the-job training with the plant in operation. The same three types of repairmen trainees are included, but the amounts of formal instruction per trainee at the Training Center have been reduced: general repair to 520 hours, general equipment repair to 780 hours and instrument/electrical to 880 hours.

Most of the present 49 basic trainees are at the Center four hours per day five days per week. For the remainder of their 40-hour week, they are assigned to crews for job experience and on-the-job training by supervisors. Scheduling provides that those in basic training remain on day shift. (The plant operates seven 24-hour days per week.)

ADVANCED TRAINING

Advanced training is provided for all who complete basic training. The total program, basic and advanced, covers four years. Formal advanced training by the Training Center staff is provided at the average rate of four hours per week for approximately three and one-half years after completion of basic training. On-the-job training by supervisors also continues during this period. At the end of each six-month period all trainees are tested on the training they have received from the Center's staff and rated by their supervisors on job performance. On the basis of these data, they are either advanced to the next training level or retained for another six months at the same level. The latter situation, of course, prolongs the trainee's total span of training. Wage scales are progressive with the six-month training periods.

By necessity, the scheduling of advanced training is geared to rotating and

other shifts to which trainees are assigned. Each advanced trainee is scheduled to a training group of from six to ten trainees for 16 hours (four half days) every four weeks. Those on fixed day shift attend on released time from their crews. Great care is given to the scheduling of training for those on day shift so as not to overly deplete the work crews. In most instances, only one trainee at a time is withdrawn from any one crew. It should be noted, however, that at present practically all of the Alpart hourly maintenance workers are also trainees. Hence, where the crew is large, it is sometimes necessary to withdraw two trainees at a time to satisfy training commitments.

NEEDS IDENTIFICATION

The content of advanced training is based deliberately upon the tasks to be performed for the maintenance of the Alpart plant and its equipment. Long-range content design includes inspection, preventative maintenance, overhaul, fabrication, repair, adjustment and replacement. Short range, especially during this first year of plant operation, advanced training has often concentrated on the more urgent needs for certain improved abilities. Such needs are identified by the Center staff in consultation with superintendents, supervisors and maintenance engineers.

Training units are developed by the Center staff in a standard format, which includes behavioral objectives, references, resources, training aids, instructional plans and unit examinations. These materials are packaged for training in the future. Maintenance procedures to be taught are first checked out with maintenance engineering and other appropriate Alpart personnel. Most training units are 16 hours in length, the amount of training scheduled in a four-week period for each trainee. Some units, however, are longer. One unit covering high pressure boiler tube welding, for example, is 64 hours.

DIFFICULTIES

It is the judgment of the present training staff that Jamaicans are highly responsive to this opportunity for im-

proving their abilities. Many indicate they applied for Alpart employment because of this opportunity for self-development. Most trainees desire that nothing interferes with their training. Jamaicans, on the average, seem to have a significantly high aptitude for learning and doing tasks involving manipulative dexterity. New members of the training staff consistently are amazed at the speed and precision of skills development.

On the other hand, there are some difficulties. A major one is the result of limited technological experience. Many Jamaicans have a rural agricultural background with rather deprived living conditions. Many families have no automobiles, no electricity or appliances, no mechanical toys or gadgets and no plumbing or running water. Some trainees have obtained limited association with such sources of fundamental experiences when attending secondary schools or they have had some informal vicarious experiences. Many, however, remain handicapped in this respect when they enter the Alpart program. Consequently, this training must foster the development of concepts and a grasp of principles which might otherwise be assumed on the basis of having lived in a technological society.

A second difficulty is posed by the many Jamaicans who enter training handicapped by underdeveloped habits of initiative. Initiative and self-direction, of course, are essential for maintenance work involving such things as making judgments, problem solving, trouble shooting and associating symptoms with causes and remedies. Hence, special attention must be given to this.

CONTRACT STAFF

Dunwoody, under contract with Alpart, employs an on-site training director and seven instructors. It is anticipated that Dunwoody will employ two additional instructors to provide more time for advanced planning of instructional units and for developing instructional materials. Alpart also furnishes two employees for clerical work and typing and a tool room attendant-shop assistant.

Contracting with Dunwoody for this training offers several advantages as compared to having the program conducted by Alpart employees. First, of all, Dunwoody's extensive experience in training skilled workers for industry, both domestic and overseas, would be difficult to match. Dunwoody's services, beginning with the initial manpower training survey and continuing with the current operation of the training program, draw heavily upon this resource. From Dunwoody's base in Minneapolis and with their nationwide reputation, they are able to recruit personnel for this tailor-made program and to prepare them for this project. An orientation is provided for new staff members and their dependents which plays an important part in their rapid adjustments to this work and new environment.

The administrative and instructional staff in Minneapolis, through the International Services Division, provides back-up support for the on-site staff. They help solve instructional problems, assist in the procurement of items not available in Jamaica and provide technical assistance for development of materials and aids. Since the on-site staff are not Alpart employees, another advantage is that they are not readily diverted from their training functions to other tasks which are equally important and often more pressing. Thus the training program with its longer range objectives continues without interruptions, which too often occur under other arrangements.

COMPANY SUPPORT

This training program is staunchly supported by Alpart management. Helpful cooperation and assistance is given to the Training Center staff by Alpart personnel at all levels. Substantial investments are being made to develop the abilities of Jamaican employees. These investments include direct costs covered by the contract plus additional costs paid directly by Alpart. These additional costs include trainee wages while in training, an amount exceeding ten percent of the payroll for hourly maintenance workers. Added to this are the inconveniences which occur when train-

ees are removed from their crews for training.

Under the circumstances, of course, the investments in employee developments are inescapable. Furthermore, it is Alpart's policy and goal to have Jamaicans fully staff the plant at all levels as rapidly as they can be trained or recruited with the required qualifications. Much progress in this direction has been made. Many Jamaicans now fill management and supervisory positions and other are being promoted or newly employed as soon as their capabilities and potentials are identified. Only by a carefully conceived and deliberate training program can this goal be achieved without jeopardizing the plant efficiency.

Because of a relatively high rate of attrition in the hourly work-force, new groups of employees must be started on a program of training at regular intervals. Only in this way can the required skilled and technical work force be developed and maintained. Thus, it is predictable that a training program similar to the current one will be needed as long as the plant operates. At a future date, Alpart will assume direct responsibility for operating the Training Center. The timing of this change-over will depend in part upon the further development of training materials and the acquiring of a qualified staff by Alpart. Eventually, as personnel can be developed, the training staff will consist of Jamaican citizens.

REFERENCES

- 1 These restrictions represent an understandable effort to bolster Jamaica's economy and to encourage the development of its human resources.
- 2 This consortium includes Kaiser Aluminum and Chemical Co., Alcoa Co. and Reynolds Metals Co.
- 3 Dunwoody's emphasis is training for the needs of industry, concentrating in the basic trade, industrial and construction fields. Their enrollments include approximately 1600 men full time in two-year post high school curriculums and another 3000 apprentices, journeymen and other adult workers each year in their evening school extension program.