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By J. P. THOMAS, M. Ed.

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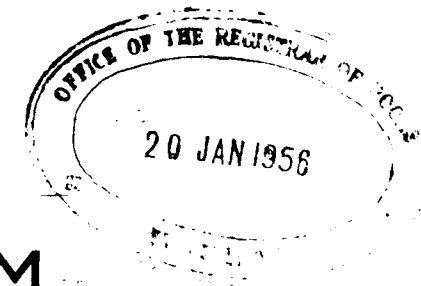
SOME OPINIONS:

1. "Sri J. P. Thomas has rendered very valuable service by writing the book 'Organisation of Physical Education'. The book is written in clear and lucid style and contains well considered thoughts on varied methods of teaching and organisation of Physical Education. I am sure it will prove a very useful guide to the students of College of Physical Education and will provide an interesting reading to the general readers. The book is based on the cognate experience of the author in the realm of Physical Education."—M. CHAUBE, Principal, Govt. College of Physical Education, Allahabad.

2. "The book provides in an easily accessible form a large amount of practical information with details regarding the organisation of Physical Education including the conduct of contests, festivals etc. This should prove very valuable to the Physical Education Teachers in Schools especially in the mofussil where he has to shoulder the responsibility of organising the programme but may not always have the required personal guidance or special library facilities.—DR. S. W. HARDIKAR, Director, Sri Hanuman Vyayamsala Academy of Physical Education, Hyderabad, Deccan.

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VYAYAM

NOVEMBER 1955

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EDITORIALS

1. New Colleges of Physical Education - the need to maintain standards

While we welcome the establishment of new colleges of Physical Education in other States, may we point out the need to maintain high standards in the establishment of such colleges. A college of Physical Education should have certain minimum facilities. It must have a campus of at least 30 acres of level ground. There must be adequate number of playfields and playcourts. It must have a gymnasium, swimming pool and an outdoor theatre. Adequate administration and class room facilities must be available. A library with the latest books on Health, Physical Education and Recreation is indispensable. A college of Physical Education must be a residential one. Hostel facilities must therefore be provided for all its students. This is

necessary because work at a Physical Education college begins at 6 A.M. and closes at 6 P.M. Adequately trained and experienced staff must also be available.

There is definitely a need for more colleges of Physical Education in India. Our point is that in establishing such colleges there should be provision for the above mentioned minimum facilities. Physical Education is bound to suffer if standards are lowered when establishing new colleges. Colleges with adequate facilities, staff, library and equipment can be established today only with Governmental help. We appeal to the State and Central Government to help new colleges with adequate grants.

2. Inspectorate for Physical Education

The need for an Inspectorate for Physical Education in the various States of the Indian Union deserve our special attention. We have been pointing out in these columns the need for promoting Physical Education through an Inspectorate for Physical Education established in each State. States like Bombay, Madras, Orissa and West Bengal have established such Inspectorates. The results are very

encouraging. We would like to point out, however, that the number of Inspectors appointed in these States is not adequate enough. We are of the opinion that there must be one Inspector for each district if the promotion of Physical Education is to be done effectively. Where one Inspector is not possible for each district, we definitely feel that he may not be saddled with more than two districts.

3. In-Service training for Physical Education teachers

Another problem which is very important in the field of Physical Education is In-Service training for Physical Education teachers. At present we have

very limited facilities for In-Service training. Majority of our teachers had a year's training, some 20 years, some 15 years, some 10 years ago.

The techniques and methods in Physical Education particularly in sports and games have been rapidly changing, particularly rules relating to the major games, track and field sports and swimming. The need for refresher course is therefore a great one. It is our duty to give adequate short courses for Physical Education teachers working in our schools, colleges and Universities which will give them up-to-date information and knowledge of the latest in Physical Education. In-Service

training must be a regular programme in every Physical Education college in India. Institutions employing Physical Education teachers must enforce a rule that once in five years they must attend an In-Service training course. If this rule is put into effect, the programme of Physical Education in our educational institutions is bound to improve. It must however be pointed out that funds must be provided for the Physical Education teacher to undergo this training.

4. "Take sports and games to our schools" says Jesse Owens and Bob Mathias

India had the privilege of the visit of two outstanding American athletes, Jesse Owens and Bob Mathias. Jesse Owens was winner of four gold medals at the 1936 Olympic Games at Berlin. Bob Mathias was twice decathlon champion at the 1948 Olympic Games at London and the 1952 Games at Helsinki. Both these athletes were of the definite opinion that if India is to achieve distinction in International competitions our champions should come from our schools. A good programme of Physical Education with sufficient emphasis on the major games particularly track and field sports should become an

integral part of Education in every Secondary School in India. They were also of the opinion that the fundamentals of the major games and track and field sports should be taught as lead up games in our primary schools to begin with. Both these veteran athletes were products of their schools. Both were handled by good coaches. If we are thinking of improving standards, we must necessarily look forward to better teachers of Physical Education for our schools. It is high time we also think in terms of specialised coaches for major games and track and field sports in our schools.

5. The plight of State sports organisations

The State associations controlling sports in the various States in the Indian Union are experiencing considerable financial difficulty in two directions. First, in conducting its own State championship tournaments. Secondly, in financing the participation of the State teams in the National championships.

These Associations used to be patronized by the Princes and the

Maharajas. Their help has come to a stand-still. It is difficult to raise money these days from public donations. It is also difficult to raise money through gate. It is therefore high time that State Governments come to the help of the various State Associations with adequate grants which will enable the State Associations to conduct the State championships and also to participate in the Nationals.

RESEARCH—WHAT VALUES FOR THE HEALTH AND PHYSICAL EDUCATOR ?

By

D. B. VAN DALEN

HEALTH AND PHYSICAL EDUCATION is hampered by the absence of a large body of research validated by scientific inquiry. A profession is established only by selected principles of pertinent subject matter based upon scientific facts. Yearly, the number and completeness of such studies are increasing with amazing rapidity, but physical education is still, largely, in the age of empiricism. Actually, in our field, we have just scratched the surface of thousands of unanswered problems.

Contributing to this dilemma is the prevailing concept toward experimentation by the health and physical education teacher. Research, too frequently, has been considered as an academic appendage to the instructional program; the province primarily of the "researcher" and of the intellectual elite. Nothing could be further from the truth. Research is the core of the profession—its very structural foundation. Can we call ourselves a profession and assume an attitude of indifference to this matter? Is it not the individual and collective responsibility of the members of the profession to advance the frontiers of knowledge? Is it enough to sit back and wait for the evolutionary process to bring about the necessary improvement in our field?

What is Involved

Research is the result of several impelling forces, especially notable are: curiosity, interest, perseverance, and professional responsibility. Many members of the physical education profession avoid this complementary field because they fear the exacting requirements and

techniques. Yet, what group of men and women are more naturally prepared to enjoy such work? Does not research, as defined in the dictionary, demand these same characteristics? Webster states:

"Studious inquiry or examination; specifically, and unusually, critical exhaustive investigation or experimentation having for its aim and discovery of new facts and their correct interpretation, the revision of accepted conclusions, theories, or laws, in the light of newly discovered facts, or practical applications of such new or revised conclusions."

Definitions by their very nature, lack the glowing overtones that please and attract the ear and mind. However this blue print of research suggests the excitement of adventure and the thrill of exploration which can be achieved in whole or part by members of physical education who have steered away from research.

Actually, when stripped of its erudite terminology, scientific investigation is easily within the grasp of ordinary human endeavor. Research is but a frame of mind, and attitude toward change rather than mere passive "recipe-following." Research is a problem-solving method which recognizes the occurrence of a difficulty; defines the difficulty into a problem; formulates a possible solution; collects, organizes, and evaluates data; reaches conclusions; and, finally, appraises the collected data in terms of a formulated solution. Such a process is not formidable, oppressive, and

intricate; but rather exciting, challenging, and concise.

Areas and Methods

The conduct of creditable research does not necessarily demand that work be done in laboratories with bundles of data, control and experimental groups, mazes and rats, and a battery of electrical calculating machines utilizing intricate mathematical processes. Any sincere person who strives to penetrate the frontiers of knowledge by collecting facts to answer through questions is a research worker. The studies may be conducted in the gymnasium, the playfield, the library, or the classroom. Any number of techniques may be substituted for statistics. Even the aesthetic production of new dance forms may be a project for research. Every conceivable area of the physical education field needs substantial study: curriculum, history, child growth and development, equipment and supplies, teacher training and selection, classification of children, achievement and social efficiency tests, methods, organization of health service, instruction, and athletics. Every alert physical education teacher has recognized the personal need for more scientific study in one or more of these areas. Isn't it a personal and professional obligation to render public solutions to these problems?

Values in a Research Program

Personnel untrained in research methods can become proficient by participating in a research program. Research proceeds at a number of different levels. Research problems may be attacked from one person up to organized group levels. Organized collaborative research is an excellent means for the neophyte to learn the introductory techniques by playing a minor role in larger research projects. Apprenticeship training may eventually lead to becoming an independent specialist.

Organized research is the only means available to solve some of the complicated

problems besetting the field. Many workers are necessary for effective progress, makes work easier, and it is a more effective approach to our larger problems. Those who conduct research in an organized manner are frequently interested in practical rather than theoretical considerations. To bring to fruition a vast coordinated program of investigations, the help of all is urgent to partake in specific areas of work. There is a place for you on one of these levels. You will be surprised to learn how fascinating it is to be a part of a research program.

Personal satisfaction is one of the priceless spiritual rewards of the scientific investigator. His work not only achieves personal values but also makes contribution to fellow faculty members, pupils associated with the instructor, and the community. A sense of personal pride rewards the research worker when he has played a part in the establishment of a new fact or a procedure. Everyone admires such a person. These resulting gratifications and rewards spur you on to greater projects. It is unfortunate that so many health and physical education teachers avoid this area of their studies which is capable of contributing so much to creating confidence, inspiration, and general sense of achieving. This award is awaiting the teachers of the profession if they avail themselves of the existing opportunities.

Research is not spiritless grubbing and boring drudgery, but rather a dynamic force capable of revitalizing the teacher, supplying "light, fuel, and power" for the continual regeneration of his energies. New motives, new interests, new enthusiasms are continually created. Nothing succeeds like success.

Professional growth is the consummation of continual reevaluation of one's past thinking. Research techniques naturally demand the continual operation of such a process. Recognizing a problem; formulating a plan for

solution; collecting, analyzing and systematizing data repeatedly jars entrenched ideas and attitudes. The historical analysis of work related to the problem requires intense scrutiny of considerable literature. These readings build up a body of invaluable information for the participant in scientific procedures. Persistent, continuous, and systematic reasoning increases and refines his knowledge as well as sharpening his critical evaluation of materials.

Reflective thinking necessary for the interpretation of these readings often necessitates reorganization of thought. Old ideas are shelved, new ideas result from a participation in a research problem. Critical and controlled thinking is the distinguishing characteristic of the research worker. The wholesome satisfaction of personal growth and worthy social contribution is his reward. Mental inflexibility and professional boredom never cripple his potential capacity merely creating another teaching automaton. Participation in research is an indispensable aid for the teacher who desires to be competent.

Experience in research tends to improve the quality of instruction. As a result of instructional research, superior teaching results in both controlled and experimental groups. Experimentation brings challenges and interests which in turn make for better teaching. Ordinarily a productive scholar makes an inspiring teacher. Research work does not guarantee good teaching and perhaps many superior educators have never engaged in scientific investigations, but other things being equal, the individual who possesses research skills in addition to other teaching qualifications should make a very worthy teaching contribution. The instructor with a vibrant personality can effectively transfer knowledge collected by previous authorities, but there is always the danger of such instruction degenerating into merely an accepted body of knowledge.

Students in contact with the research worker, who has experienced in searching for truth and producing knowledge, are sharply stimulated by the critical frame of mind of the scientific investigator. Visualizing knowledge as a dynamic process rather than a scholastic exercise, generates greater interest in teaching. There can be no doubt concerning the stimulating influence the research worker brings to the classroom or conference. Sparks of his zeal tend to raise the professional standards of the whole faculty or meeting. A good research worker never succumbs to teaching senility, that degenerative disease that destroys the professional enthusiasm of individuals and is nourished by dull, routine, inefficient instructional practices. Good research projects should be the heart and soul of every instructional program for they provide the necessary "vitamins" to stimulate superior teaching.

Familiarity with some research techniques, help the modern educator to remain professionally literate. Inability to comprehend the ever increasing mass of information promulgated in current articles means that he is unable to interpret the advances in his field and related areas. As health and physical educators, one should be able to read these studies critically and make applications to his teaching situations. The professional individual should possess sufficient knowledge of scientific methods and techniques to be able to evaluate his teaching in terms of the latest scientific evidence.

Participation in research is an invaluable means of learning to distinguish the fundamental from the superficial, the sound from the unsound practices and literature. One cannot experience the greatest satisfaction from his job if he has placed a professional ceiling on his growth by refusing to develop skills in using research tools and knowledge of scientific techniques which will keep him in contact

with the work and progress being made in physical education.

Economic betterment frequently is the reward of the teacher who participates in scientific investigation. Educational systems sometimes offer monetary awards for the completion of an investigation. Salary increases over and above the regular wage schedule are determined by the teacher's professional interest in education problems. An employee engaging in research work provides tangible evidence of his right for consideration for such awards. The ability to organize, analyse and interpret scientific inquiry into actual school practices is justification for promotion to supervisory and administrative positions. In studying the qualifications of a prospective employee, a record of research work in the teacher's application blank, has "sales appeal" because it not only indicates specialized skills but demonstrates genuine professional interest.

(Courtesy - Physical Educator)



Institutions of higher learning frequently have requirements for advanced degrees demanding the completion of research problems. By discovering a problem within his own school system, the teacher can frequently make a practical contribution to his own community, improves his own teaching and secure the higher degree he desires. Appropriate professional recognition and commensurate monetary rewards usually result from such diligent efforts.

The Challenge

Participation in research, whether on a personal group level, holds many values for the teacher. Is it foolish to close one's eyes to a source of inspiration and gratification? The path of research is the road to new horizons, enjoyments, and promises. Take out your "compass." Get out your "map." "Plot your course as a professional person !

PROGRESSIVE RESISTANCE EXERCISE IN BASIC TRAINING FOR SPORT AND ATHLETICS

By

DR. I. J. MACQUEEN

(from the Nuffield Orthopaedic Centre, Oxford)

The primary object of physical recreation is not the production of champions but rather a general improvement in the health and prowess of all. As physical educators we have first to teach our pupils the art and craft of field, track and gym, and only secondly how to win. But our duty goes further than that, for we have to see that they enjoy their sport safely and without risk of injury. The weekend sportsman, just as much as the Olympic athlete, needs to be protected from trauma to ligaments, cartilage, tendons, joints, bones and muscles. The regular practice of a particular sport does not necessarily ensure that the body is always strong enough to escape its minor or major hazards. For example, a very large proportion of the torn knee cartilages and ligaments seen in orthopaedic practice are sustained at football. Progressive resistance exercises to the quadriceps muscles can not only help to prevent this but also to restore protective power to the knee after injury. "Nowhere in the human body is the functional integrity of a joint so dependent upon muscle support as it is in the knee Even the fastest and most powerful of linesmen after several years of football have been able to increase quadriceps strength from 50 to 100 percent in six to eight weeks of progressive resistance exercise. This fact is important, particularly in treating unstable knees where greater than normal power is essential to compensate for the instability due to ligamentous injury" (De Lorme and Watkins, 1951).

The application of the principles of progressive resistance exercise to the training of

adolescents is no less important than to adults. Gallagher and De Lorme (1949) have criticised physical educators and athletic coaches for not spending much effort in the improvement of strength of the less able athletes, saying that many coaches are interested chiefly in the development of skill and in the psychological value of games. They stress that in adolescents "strength needs to be developed as well as endurance, co-ordination, flexibility, and skill; and that, if injuries are to be avoided, some games demand considerable strength about the joints. In addition, it is undoubtedly true that most activities will be performed more successfully and with less fatigue when greater strength and endurance are present; the individual will pay less physiologically, and therefore become less fatigued, when he is able to react well below his maximum limit.

The Evidence

Prejudice dies hard, probably more so in Britain than elsewhere. The misconception that exercise with weights makes one slow, clumsy and "Muscle bound" (whatever that may mean) is still held by many. Even Bannister (1954) has referred to the waddling gait and breathlessness of a 'muscle bound' weight lifter". Yet there is not one scrap of scientific evidence to support this notion; instead there exists monumental evidence to the contrary. There are certain lifts in weightlifting which, to be properly performed, demand greater co-ordination and speed of movement than any other sport in the world (MacQueen, 1954).

Space does not permit the giving of details of every athlete who has benefitted from basic weight training. But to convince the sceptical, space must be used to detail the achievements of some of the better known athletes who regularly use weight-resisted exercises, and who have stated that their performances have improved from so doing. *Where they are known, details of the actual exercises used by individual athletes are given.* This will help readers to select from the schedules given later those movements which are most useful for their particular sport.

Malvin Whitfield (U.S.A.): In the 1948 Olympics he received gold first-place medals for the 800 metre run and as a member of the winning 1,600 metre relay team and a bronze medal for third placing in the 400 metres. At the 1952 Olympiad he again won the 800 metres, in 1 min. 49.2 secs. and received a silver medal as a member of the second place 1,600 metre relay team. His fastest time for the 800 metres is 1 min 48 secs., performed in Stockholm. He holds the world's record for the half-mile at 1 min. 48.6 secs.

Mal Whitfield regularly performs one-legged deep knee bends while holding 50 to 75 lb. and two-legged deep knee bends* with a barbell weighing 270 lb (100 lb. more than his body weight). He uses the same weight for the bent-arm pull-over exercise. Sit-ups on an inclined abdominal board are done with a 25 lb. weight held behind the head. He trains with weights for about 2½ hours a day during the "off season" from track competition.

Rev. Bob Richards (U.S.A.) Sullivan Award and 1951 national Decathlon winner, has officially cleared 15 feet in the pole vault more than 21 times. His record is 15 ft. 4¾ in. In 1951 his Decathlon marks were as follows (he has improved on many of these since then):

100 metres, 10.9 seconds; long jump, 23 feet; shot put (16 pounds), 43 feet; high jump, 6 feet 1 inch; 400 metres, 51.6 seconds; 110 metre high hurdles, 15.2 seconds; javelin, 196 feet; pole vault, 15 feet 4¾ inches; 1,500 metres, 4 minutes 51 seconds; discus, 136 feet. This was the world's best score for the year.

Bob Richards started training with barbells when he was 12 years old. His favourite and regular weight-training exercises now are: repetition clean and jerks* with 225 lb. Two hand pressing* starting with 135 lb. working up to 160 lb. on a "power" programme of descending repetitions performed against increasing resistance (MacQueen, 1954). He also performs two hand curls* and pull-overs.* For leg power he does knee extensions with iron boots.

Fortune Gordien (U.S.A.) holds the world's record in the discus at 194 feet 6 inches. According to the international decathlon point system, a throw of this distance is superior to a 60 foot 8 inch shot put, a 7 foot 1 inch high jump, a 9 second time for the 100 yards sprint, or running a mile in less than 4 minutes.

In preparation for this remarkable feat, Gordien practised the discus throw movement with a dumb-bell weighing 35 lb. To strengthen his legs he does deep knee bends with over 200 lb. and rise-on-toes movements with 150 lb across his shoulders. To develop the deltoid and pectoral muscles which are used in the last whip of the discus throw, he performs lateral raises with heavy dumb-bells, both lying and standing.

Fortune Gordien was first persuaded to try progressive resistance exercise by Otis Chandler, who has himself held the world record with a shot put of 57 feet 4 inches and has thrown the discus 163 feet. Last February Chandler won the heavy weight weightlifting championship

of Southern California with an Olympic total of 845 lb.

Parry O'Brien (U.S.A.) in May last year officially broke his own 16 lb. shot put record with a throw of 60 feet 5¼ inches. He is the third best discus thrower in the world with a distance of 184 feet 1½ inches. The weight-trained athlete who weighs 225 lbs. has, without special preparation, officially run the 100 metres in 10.8 seconds, the world's record at the time being 10.2 seconds. He favours two hand presses starting with 210 lb. for three sets of three repetitions. He uses 220 lb. for three sets of five repetitions in the clean and jerk and 250 lb. for the press on bench.* He trains with progressive resistance exercises between November and March, discontinuing them during the track and field season.

Bob Backus (U.S.A.), on February 20th, 1954, established a new world record of 63 feet 5 inches for the 35 lb. weight throw. His programme of progressive resistance exercises is one which any athlete competing in throwing events should study. On Mondays, Wednesdays and Fridays he does the following: 3 sets of 5 repetitions heavy deep knee bends (he has used up to 360 lb on this exercise), 2 sets of 10 repetitions two hand press on bench* with 205 lb., 3 sets of three 3 repetitions pulling the barbell into the shoulder ("cleans"*) with 230 lb., 2 sets of 10 repetitions shoulder shrugging while holding a barbell of 365 lb with hands close together in front of thighs. He also practices bar bell pull-overs and pulley work while "resting" between the heavy exercises.

Dick Cleveland (U.S.A.) in 1951 was the second man in the world to swim a 100 yards in less than 50 seconds. He created a new world's record of 49.6 seconds for this event. The weight-training routine of this champion swimmer will surprise those who claim that heavy exercise is detrimental to swimming. On Mondays, Wednesdays, and Fridays, Bob Cleveland at a bodyweight of 160 lb. does

repetition bench presses with 170 lb., two hand pressing with barbell both standing and seated, and lateral raising with heavy dumb-bells while lying supine on a bench. On Tuesdays and Thursdays he performs 3 sets of 10 repetitions deep knee bends with a 200 lb. barbell, "bouncing" up from the full deep-knee bend position to give added power to knee and hip extension. He also does barbell pull-overs combined with deep breathing.

Other swimmers who have employed basic weight-training are: Johnny Weissmuller, members of 1952 British Olympic Diving team, and Barbara Jensen Reeves (a member of the 1948 U.S.A Olympic swimming team.)

Our own MacDonald Bailey, whose athletic achievements are well known, is another weight-training devotee. He favours fast repetition two-hand snatches* with barbell, a combined legroll and abdominal raise exercise performed wearing iron boots, and alternate pressing with dumb-bells. The latter exercise is done to strengthen the shoulders and get more drive into his arm action while sprinting. He uses weights three times a week but only in the off season.

Gordon Pirie has recently taken to practising the two hand-press-on bench to improve thoracic mobility and two-legged deep-knee bends with barbell for increased leg power.

Other British athletes who use progressive weight resistance are Olympic steeplechaser John Disley, pole vaulter Geoffrey Elliott and sprinter Sylvia Cheeseman. Miss Cheeseman has benefited so much from this form of training that she plans to tackle hurdling. One of her favourite exercises is stepping quickly up and down on to a chair while holding a weight across her shoulders.

Emil Zatopek, Lester Steers and John Savidge are but a few more names from the growing numbers of famous sportsmen who give credit to basic weight-training.

* To save space, official exercises of the British Amateur Weightlifters Association are marked with an asterisk and a description of how they should be performed can be found in the Official Handbook of that organisation.

From a study of the poundages used by the above athletes it will be obvious that there has been no mere toying with weights, but rather that basic weight-training has been assiduously practised. In nearly all classes the weights used are so heavy in relation to the lifter's body weight that only by many months, or even years, of serious weightlifting training could they be safely lifted. In many cases the weights handled are very heavy even by weight-lifters' standards. In all cases they are certainly heavy enough, according to the critics of basic weight training, to produce "the waddling gait and breathlessness of a musclebound weight-lifter." Yet these very same men have proved the poetry of their motion, the speed and suppleness of their muscles, as convincingly as any other athletes in the world. Is any further proof needed?

Basic Weight-training Techniques and Schedules

The Amateur Athletic Association issues, on request, schedules of weight-training exercises which have been devised by experts to meet the needs of athletes preparing for the different events. The A.A.A. have also a complete book on the subject which is now in the press. Information on how to perform correctly all of the officially recognised weight-lifting exercises of the British Amateur Weightlifters Association is contained in the official Handbook of that organisation. Interested persons requiring this literature or to know where proper weight-training facilities and instruction can be obtained should contact the secretaries of the respective bodies. Many of the important details of weight-lifting and weight-training technique have been described by the present author in an earlier paper (MacQueen, 1954). Weight-lifting schedules for most sports are given in the excellent work of Johnson and Heidenstam (1955).

Although weight training has been used by some athletes for many years, it has not been

sufficiently long or widely practised to say dogmatically which group of exercises are the best preparation for any particular sport or event. That is one reason why the personal weight-training schedules have been detailed alongside the specialities of the athletes above. A study of these will help to guide the choice of exercises and the number of repetitions.

It has long been evident, however, that there are a certain few exercises which are fundamental strength and muscle builders. They appear to affect not just the superficial skeletal musculature but also to exert a stimulating effect on the cardiac, respiratory and metabolic systems. One exercise in particular which has this effect more than any other is the deep knee bend or "squat" with a barbell held across the shoulders and, therefore, is an essential basic exercise of any schedule. Of course, all exercise stimulates the heart, lungs and metabolism, but there is no other single exercise which does so more markedly than heavy full squats with a barbell. The exact physiological rationale for this is not fully understood and demands further study. But the empirical evidence is enormous—as witness its inclusion in all the training programmes above.

The following factors contribute to making this exercise such an important strength developer: (a) It directly exercises the largest and most powerful muscle groups in the body, viz., the glutei, quadriceps, hamstrings, hip adductors and flexors, and erector spines. (b) Great demands are made on the cardiac and respiratory systems in virtue of the enormously increased flow of blood to these muscle groups and the pump action on the thorax. (c) It is customary to breathe in deeply just before going down into the full squat position, which, when reached, enforces a further antero-posterior and lateral expansion of the thorax by pressure of the abdominal viscera under the contracted diaphragm. A widening of the costal arch and increase in the vital capacity therefore often results in persons regularly using this

exercise. (d) Immediately the exerciser starts to return to the upright position there is a marked, but very transient Valsalva effect. The commencement of the strong expiratory effect is made against a closed glottis, resulting in a rise of intrathoracic pressure. Cardiac output is first augmented and then diminished. As soon as the effort is over, blood which had accumulated in the great veins, enters the heart, markedly increasing its stroke volume.

Basic Exercises

The squat is performed with the barbell held across the shoulders, the feet being a foot or so apart. It is better to wear ordinary leather shoes than soft canvas ones as leather soles help to support the arches of the feet and the heel of a shoe is helpful if the calf muscles are tight—as they so often are in runners. Keeping the back flat and erect and the head up, the knees and hips are flexed fully until the exerciser is in the "full knees bend" position. He then returns to the starting position. A wooden block of about 1½ in. or similar raise under the heels makes the exercise easier for those with tight hamstrings and calves and throws the weight more on to the quadriceps muscles. This effect is even more pronounced if the bar is held in front of the upper sternum. In rising to the erect position on no account should the back be rounded or the seat allowed to come up first. When the erect position is reached, a calf exercise can be combined if desired by rising up and down on the toes once or twice before repeating the squat.

Other fundamental weight-lifting exercises are the press on bench, snatch, pull-over, standing press and some form of back extension exercise.

The press on bench can be done with either a barbell or two dumb-bells. Lying supine on a bench not more than 18 in wide the bar is held at arms length with hands shoulder width apart. It is then lowered un-

til its centre touches the sternum and after a momentary pause up again. If wished, a wider grip may be used, bringing the resistance more on to the upper pectorals and anterior deltoids. If dumb-bells are used, they are lowered from the position to the chest and then back to arms' length. Breathe in deeply as the weight is being lowered and out as it is being pushed up. This exercise is particularly recommended for throwing events and swimming.

In the two hands snatch the barbell is lifted from the floor to arms' length overhead in one continuous movement. Standing with feet about 18 in. apart and shins close to the bar the lifter partly squats until, with elbows straight he can take a wide grip of the bar, hands about 3 feet apart. The bar is then rapidly pulled as high as the sternum and at this stage the feet perform a fore-and-aft "split." At the same time, the elbows are quickly straightened and wrists flicked back so that the bar finishes at arms' length above and a little behind the head. It is essential to have experienced coaching to master this lift, but it is recommended as a basic exercise for any sport. The exercise can be made really strenuous by returning the bar to the starting position just in front of the legs, but still being supported by the hands and not resting on the ground. The snatch is then repeated several times without putting the weight to the ground between repetitions. This is termed the repetition "handing snatch" and is unrivalled for developing speed, strength and co-ordination, and when performed with moderate weights is a wonderful breathing exercise.

The pull-over is another fine breathing exercise. Lying supine on the floor the barbell is grasped at arms' length behind the head, palms uppermost. With elbows kept straight the bar is pulled over until it is vertically above the face and then lowered with elbows still straight to the starting position. Perfor-

med with partly bent elbows ("bent arm pull-over"), and heavier loads, it will powerfully develop the chest, arms and shoulders. For greater thoracic mobility, a small pad should be placed under the shoulders, or the exercise performed lying at one end of a bench, so that the bar can be lowered backwards below the level of the bench. Inhale deeply while lowering the bar backwards, exhale while bringing it to the overhead position. Another modification is to continue the movement right down to the thighs, so that the arms pass through 180° instead of 90°.

The two hands press can be done standing or sitting. Heavier weights can be used when standing. Bob Richards demonstrates a perfect starting position. See that the bar is well into the sternum, forearms are perpendicular, and the back erect. The legs should be braced and the buttocks contracted. The bar is then pressed straight overhead to arms' length, and then lowered to the starting position. The trunk should not be swayed backwards or sideways and the exerciser should look straight ahead throughout. Alternatively, a dumb-bell in each hand can be used. A modification is the "see-saw" or "alternate dumb-bell press" in which one dumb-bell is pressed overhead while the other is lowered to the shoulder. This modification is of particular value to throwers and for giving extra drive to the arm movements in sprinting. It is advantageous to the press the weight overhead with a rapid punching action like the terminal thrust of the shot-put.

Back extension exercises have been included in this basic schedule as it is believed that they can minimise the incidence of low back strain and intervertebral disk lesions in athletes, as well as improve performances. There are various forms of back extension exercise. The one most recommended is as follows: Lying prone on the floor, knees straight and toes pointed, arms straight out in front of the head, arch the spine backwards lifting the arms

and legs as high off the floor as possible so that the exerciser is resting only on the abdomen. Relax and repeat. Graduate to doing the exercise while holding a weight behind the neck. A further graduation is to lie with just the hips and lower limbs on a table, the head and trunk hanging down over the edge. The ankles must be held by a strap or assistant. The spine is then extended completely until the head and shoulders are well above table top level. Resistance to back extension is increased by holding a weight behind the neck.

The "good morning" exercise is performed by standing with a barbell across the shoulders and bending forwards at the hips until the trunk is horizontal, keeping the back flat and head up. The trunk is then returned to the upright position.

The "dead lift" is a great strengthener of the lower back. The lifter stands with shins close to the barbell and squats until he can grip the bar with one hand knuckles forwards and the other knuckles backwards. Keeping the back flat and head up, the knees and hips are then straightened until the bar hangs in front of the upper thighs. It is then replaced on the ground. Heavy weights should be used for exercise.

In all exercises the maximum weight that can be correctly handled just ten times (the "ten repetition maximum" or "10 R. M.") should be used. As soon as strength increases so that more than ten repetitions can be performed, the weight should be increased to the new 10 R.M. In this way the load is kept safely within the lifter's strength capacity and progression (an essential feature for success) is controlled. This is a more scientific method of prescribing the load than prescribing an arbitrary weight as is done in the A. A. A. schedules. Furthermore, by using this system the safe yet effective resistance for any exercise can be self-determined. Once weight-training experience has been gained individuals may

prefer to use rather higher or lower numbers of repetitions, say, 6 or 12, in which case the 6 R. M. or 12 R. M. load will be used.

Each exercise should be repeated in three "sets". Thus three "sets" of the ten-repetition maximum are done, with a short rest between each set of ten repetitions. In this case the complete "resistance-repetition-combination" for an exercise could be prescribed as "10 R.M. x 3."

Supplementary Exercises

The knee extension with an iron boot should be done by footballers in addition to barbell squats. The necessity for including this exercise is explained above. Use the maximum weight that can be extended just ten times (10 R.M.). Both legs may be exercised at once. After straightening the knee, lower the leg slowly do not let it swing down.

The "rowing motion" with barbell will benefit rowers. Bend forwards at the hips, back flat, head up and let the bar hang downwards at arms' length. By bending the elbows pull the bar high up until its centre hits the sternum. Lower to the starting position and repeat. The "upright rowing" exercise is similar but performed erect, the bar being pulled up close to the body and the elbows being lifted high up. It does not stimulate the oar movement in as closely as the bent-over rowing exercise.

The "curl" with either barbell or dumb-bells is a primary developer of the elbow flexors, the biceps and brachialis muscles. With palms facing forwards the barbell is grasped shoulder width apart and allowed to hang in front of the upper thighs. By bending the elbows and wrists the bar is "curled" up to the sternum, the elbows being allowed to come forward a little towards the end of the movement. Lower and repeat. Many modifications of this exercise exist, especially when performed

with dumb-bells. They include the "seated dumb-bell curl," "alternate dumb-bell curl" and "lying curl". They are mostly designed to ensure that the resistance becomes maximal towards the peak of contraction of the biceps ("peak contraction" principle MacQueen, 1954). Sprinters and jumpers will not need to develop these muscles particularly, but oarsmen, throwers and pole-vaulters will.

Some form of abdominal exercise should be practised by all athletes and sportsmen. The superb abdominal muscles of the ancient Greeks emphasise this point. The conventional "sit up" is more strenuous when done on an inclined board and with a weight held behind the head. This is a favourite of Mal Whitfield, holder of the world 800 metres and 880 yards records. Lie supine on a long board or bench raised about two feet at one end where the feet are held by a strap or assistant. With hands clasped behind the head, raise the trunk until the head approaches the knees. Return to the starting position and repeat. Practice on the horizontal may be necessary before the exercise can be done on the incline. Graduate by increasing the steepness of the incline and/or by holding a weight behind the head. The resistance can be directed more on to the lateral abdominal muscles by sitting up in a semi-sideways position or by rotating the trunk to alternate sides when sitting up.

Summary

The need has been discussed for the use of progressive resistance exercise in basic training for sport and athletics by Olympic competitors, the commonplace sportsman, and adolescents.

Unassailable evidence of the value of this type of training has been presented by giving details of the heavy weight-training schedules of numerous world's record holders from shot putters and discus throwers to sprinters and swimmers, also photographs showing some of these champions actually working on progressive resistance exercise.

Attention has been drawn to the facilities already organised by the A.A.A. and other sporting bodies to help individuals and clubs requiring advice and coaching in these training methods.

The most important basic weight-training exercises and techniques have been described in detail with an outline of additional special exercises for various sports.

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THE HOP STEP AND JUMP

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Fundamental Understanding

The hop step and jump, like every other sport skill, is based upon established laws of physics and mechanics. Success in this event will only be proportional to the athlete's understanding of these basic principles.

The distance a man travels in a jump is determined entirely by his take-off velocity and his angle of projection. Any other gymnastic movements he executes in the course of a jump merely help him to realize the full potential existent in the jump, resulting from his run-up and spring into the air.

Contrary to many published views, the maximum distance in the broad jumps is not achieved when the take off angle of the body's center of gravity is projected at an angle of 45 degrees, but the greatest distance will be achieved when the angle of projection is closer to 25 than 30 degrees. This statement can readily be verified.

Two factors influence the thinking in this contradiction: 1. When the angle of projection of body is ascertained, we must keep in mind that the center of gravity is not projected from the ground, but from a point at about the level of the waist or belt line. An angle of 45° from the horizon as a point of reference no longer approximates this figure when a parabolic curve is drawn through the center of gravity of the jumper. A take-off angle 45° implies a maximum loss in forward speed and a maximum gain in height; whereas, when the jumper goes up at a minimal angle there is a minimum gain in height and minimum loss

in forward velocity. Somewhere between these two extremes we find the optional angle for a broad jump take-off.

From film analysis it can be observed that when the take-off lean of the jumper, measured from a line drawn from the toe of the take-off foot and extended through the center of gravity, is compared with the actual take-off angle of the jumper, which was obtained by plotting a line through his center of gravity from another line drawn parallel to the ground at the height of the true center of gravity, we find a discrepancy in angle of 30 to 35 degrees. When the true projection angle of the jumper is compared with an extended line drawn from the ground through this point we find a discrepancy of 15 degrees. That is to say, when the jumper actually obtains a projection angle of 30 degrees, this approximates an angle of 45 degrees with the horizon as a reference point. In several tracings made from a very consistent 24 foot jumper it was found that his body lean angle was only about 59 to 60 degrees which, by averages, would give him a true projection angle of only about 25 degrees on his best jumps. Obviously, it is quite difficult to obtain a true projection angle of 30 degrees in the broad jump.

Tremendous force applied instantly, is required in order that a jumper leave the take off board with a true projection angle of 30 degrees. This would mean that the jumper's body lean from his toe up would be in the neighbourhood of 75 degrees. From numerous calculations where all the correction factors for the flight path are taken into consideration, the best jumping distance is not

obtained with a 45 degree angle of projection from the horizon. The true projection angle will be much nearer 25° at the waist level than 30°. It is conceivable than at exceptionally fast sprinter, who can jump vertically enough at the board, might well reach 28 feet in the broad jump. In the hop step and jump where the angle of take-off should be low in the hop, the inability to get great lift often works to the jumper's advantage.

Definitions

The use of the term hop step and jump is a gross misnomer. The German terminology drei sprung, triple jump, is much more appropriate. In actual practice, an athlete takes an 18 to 20 foot hop, follows this with a 14 to 15 foot step, and tries to add another 15 to 20 feet at the end, all in a matter of one-half seconds. A 14-foot step is not a step by any stretch of the imagination since a leap of this nature exceeds the stride of our tallest and fastest sprinters who never exceed nine feet per stride when in full flight. Therefore, we are forced to conclude that in reality the step is another jump requiring the expenditure of tremendous energy. A failure upon the part of a beginning hop step jumper to appreciate this fact is as serious a handicap in his understanding as we can conceive. This alone is probably the principal factor which accounts for the low calibre of performance in this event all over the world.

The Approach Run

The run-up in the hop step and jump is distinctly different from the approach in the broad jump. This run must be more relaxed. The athlete should strive to achieve a style such as he sees in the low hurdler in full stride or in the pole vaulter's approach. Why do we place such great emphasis on the style of running?

The hop take-off is a very carefully controlled effort as far as force and direction are concerned. Control is lost when the jumper

comes to the board all tensed up. We must keep in mind that the hop step jumper execute a series of very complicated gymnastic movements in rapid sequence. These involve arm and leg movements and a very careful control of balance.

In actual practice, a hop step jumper spends about one and one half seconds in the air. This period in the air is longer than any other athlete spends, including high divers. The hop step jumper is confronted with three major problems at the take off: 1. He must obtain good distance without losing very much momentum. 2. He must control and maintain his balance. 3. A rhythm which will permit full utilization of original momentum, or that remaining to him, at the end of each landing effort must be maintained. Jumping discipline is very important in this event. The jumper may jump as hard as possible only on the final effort.

The statements about relaxed running do not imply that high speed in the approach is undesirable, but they do mean that control should never be sacrificed for speed in this skill. The greater the speed at the board, with control, the greater is the potential distance that will be achieved. Relaxed speed is the essential element in the approach.

A jumper must settle back on his heels and run flat-footed in the last few strides of the run. His weight must be well balanced over the take-off foot at the moment of departure. He must not rear back at the board as the broad jumper does, and his eyes should be kept focused straight ahead on the hop landing marker. Holding their heads down and lifting forward from the board will be difficult for converted broad jumpers because they are often taught to rock back on their heels to get height in the broad jump, which is not the prime objective at this time. The jumper's body weight must be kept up forward of the take-off leg much farther than that of the broad

jumper. He must keep his take-off angle as low as possible, commensurate with the speed he is using.

The Mechanics of Jump and Hop Landings

The landing shock or force which the leg must withstand in the hop or step effort is dependent upon three factors: 1. Velocity of the jumper. 2. Angle at which his body weight comes to the ground. 3. His body weight. Force of impact can be easily calculated from film data and may, if proper jumping mechanics are not employed, collapse the leg at the end of the hop effort.

One of Japan's greatest jumpers, Togami, who leaped over 52 feet, broke his femur on one bad jump in 1938 and never hop step jumped again due to bad mechanics on one hard or maximal effort. These influencing factors must be kept in mind at all times by the hop step and jump prospect.

Naturally, the athlete wants to use maximum velocity. He has no control over his weight; therefore, he controls the angle of take-off as much as possible.

From the previously mentioned influencing factors we are able to deduce which type of individual, from the view point of physique, should be the best hop step and jump prospect. The ideal man should be tall, six feet or better. For his height this individual should be rather lightly built. Obviously, our prospect must have strong legs and a strong back in order to take the landing punishment. Speed in the run is always a desirable characteristic, but the athlete must be a highly coordinated type.

In emphasizing the height advantage and leg stretch ability factor in this event, we must not overlook the many short jumpers who have been outstanding. Most of these men stood under 5 feet, 8 inches. Dan Ahearn, Tajima, Oshima, Oda, Nambu, Togami, and a host of other unusually short men have achieved 51 feet in the hop step and jump. These short men

compensated for their lack of height with great leg power and great speed. Togami, Nambu, and Tajima were all Olympic broad jumpers before becoming to hop step jumpers. A taller man has the advantage in that he can step farther forward with less lift to get a fine step of 13 to 14 feet. The short man must always make up with power what the taller man possesses in reach or duration of spring.

The greater leg stretch ability factor which the tall man possesses in the hop step jump makes it possible for him to get good distance with minimum lift just as it helps the high hurdler. When a high hurdler is shorter than six feet he is forced to jump stride the hurdle, while the tall man merely reaches forward without apparent upward lift. This principle works equally well in the hop step and jump event.

At this point we would like to mention Da Silva of Brazil one of the great, if not the greatest hop step jumper. Da Silva is tall, fairly slender, and very fast. He has frequently clocked the equivalent of 9.6 for the hundred. However, he is a mediocre broad jumper, seldom doing much over 23 feet, yet he has jumped over 53 feet. Great speed is not necessary to reach 48 to 50 feet in the hop step and jump if the jumper possesses good form. Many Japanese schoolboys in past years have bettered 48 feet and several have done over 49 feet. Emphasis in this event must be on form and its elements, rhythm and balance.

The Hop Mechanics

The hop is kept low in order to reduce the landing shock to a minimum and to conserve momentum so that the jumper does not travel too far on his first effort. We like to think of the lift from the board as a passive spring rather than a maximal feet stamp as in the broad jump. A jumper float-drives from the board more forward than upward and he must make a definite effort to stay down. This drive or thrust of the free leg must be more forward

than in the broad jump and the focus of attention and head orientation must be straight-ahead to the front. It is sometimes best for the jumper to look toward his first hop landing marker which should be very distinct. Markers should always be used for the hop and step landings. A jumper should remember not to rear back on the take-off.

In order to master the low driving take-off, the standing hop step jump should be practiced 20 to 30 times a day. For this technique the jumper should stand on a mark with one foot at least 20 feet from the jumping pit and hop step and jump into the pit. He should reach 24 feet almost the first day and should aim for at least 28 feet if he expects much out of his running hop step and jump. He should fall forward from the take-off mark and drive hard with his free leg, thus building up as much speed as he can in the step for the final jump. If he cannot reach 28 feet after a few weeks of practice, something is seriously wrong with his mechanics.

In the hop and step landing the jumper should not permit his landing foot to get out too far in front of the centre of his body weight. If his foot is extended too far in front of his body, it will either collapse the landing leg due to the angle-force combination or it will force him to take quick steps.

In the carry from the take-off board the jumper should keep his body canted forward all the way from the hips up, and keep his chest up and his arms swinging freely away from the sides for balance. He should not drop his head or look down. If he permits his arms to drop below the level of his hips and waist very much or to swing backward, the referred effect of this movement causes his waist to buckle. The buckling of the body at the waist in the hop landing, when the arms drop, is a referred kinesiological effect and should also be watched in practice at the standing hop step pit.

Arm Action

Most track coaches spend too much time worrying about the arm action of their distance runners and pay little attention to the arm action of their jumpers.

In the hop step and jump, the arm action is of tremendous importance. Arm action in this event should imitate the action of the breast stroke swimmer. The forward-upward thrust of the arms should be co-ordinated with the drive of the free leg in order to create additional inertia and augment the spring. Arm action, particularly where the jumper's arms swim forward as in the breast stroke swimming action, makes a major contribution to balance in the hop step. The jumper should literally swim through the air.

In general, most hop step jumper's use their arms not at all or not enough. Arm thrust should be more upward than forward only in the final jump take-off. Only by holding his arms high and away from his sides while he is swinging through the hop and step, is the natural effect of the dropped arms, which tends to cave in the jumper at the waist in landing, avoided. In order to demonstrate how important arm action is, the jumper should try the standing hop step and jump with no arm action, then with his natural action, and finally with the suggested swimming action.

Action in the Step

Assuming that the jumper has come through the hop with good balance and in a good position with fair speed, what does he do next? In covering 12 to 14 feet in the step he cannot hope to float off the hop landing into the step as most jumpers attempt to do. A maximal driving effort must be made for the step because his driving leg is trying to collapse under him at this time.



Roger Bannister—First to Run Mile under four minutes

Too many hop step jumpers use a type of lift we may label passive spring from their hop landing. This lift may be perfect for the hop take-off at high speed, but is most undesirable at this time. Most jumpers have a natural tendency merely to step forward from the hop landing as quickly as possible. This quick stepping can usually be traced back to too high a hop or a landing position in which the landing leg is permitted to get too far in front of the main center of body weight. If the jumper's arms drop down at this instant the center of his body weight falls backward and helps to cave in his body at the waist, thus necessitating a quick step to recover and continue forward. The jumper quick steps to save himself or the angle becomes greater. He should try to keep this angle as small as possible. When the action is hurried too much, most jumpers are lucky to obtain 10 feet with their step and 12 feet is unusual for them.

In training and form work the jumper must set a goal of 12 to 14 feet for himself and perfect his form to make this greater step possible. We feel that a step of 15 feet is too long for even topnotch jumpers and often kills the final jump. It stretches the jumper out too much. A step of under 12 feet should never be permitted except in the case of a beginner or in training. At this time the arm action is of prime importance and should approximate the pattern described previously.

The action of the lead leg in the step is the key to getting a fine step and making or breaking a good hop step jumper. Most jumpers who stumble on to the principle seldom bother to pass on the idea since it can make a mediocre jumper great. As the jumper leaves the ground in the step, he brings his lead leg up to a position wherein his knee is waist high and his thigh is parallel with the ground. He holds his knee in this position and takes a ride. This movement might well be called riding out the step.

A jumper should not attempt to hurry this action and should use a vigorous knee thrust plus leg drive from the ground. He should not reach down for the ground and should keep his body canted forward as much as possible during his flight since this will keep his leg from buckling on the step landing and add to his distance. Now, he should swim through the air with his arms to help his leg action.

If the jumper falls back on his heel too far on the step landing, he may get into a good position for the final jump action, but he will not have any speed left to make a decent jump. A definite floating feeling must be sought in the step. The action is and should seem slow and deliberate. Using a slow action does not mean that the jumper will be losing momentum. He will be gaining distance if his form is good. Jumpers should not loaf off the step take-off.

The knee action described for the step take-off is very much like the original drive of the low hurdler which has been purposely elongated.

When the jumper lifts his knee in the step action he should not thrust out his foreleg and foot or it will strike the ground prematurely and shorten the step. The jumper's foreleg should be extended just before the landing.

Discussion of the final jump is superfluous since this action is the same as it is in the broad jump. One suggestion may be helpful. Some men get better final jumps if they throw their heads back on the landing of the step and look upward.

Training Suggestions and Conclusions

It is obvious that an individual must have a strong back and good knee structure in order to be a success in this event. If these do not exist at the outset, considerable time must be spent on hopping exercises, high jumping, hurdling, and stadium climbing. High jump-

ing will be useful to develop strength and co-ordination in the off leg. Hurdles help the jumper develop a relaxed running style. Training should always be done on the grass or a soft runway. A jumper should always hop from his strongest leg since this leg must deliver the most force and take the greatest shocks. He should not jump for distance in practice—43 to 44 feet is good enough for form work and here the rhythm can be perfected. The jumper should try to develop a dah-dah-dah rhythm, instead of a typical dah-dit-dah rhythm. The best way to perfect the step action in addition to working with the standing hop step and jump is as follows :

Set a low hurdle in front of the jumping pit where there is reasonably firm take-off surface. Place a marker in the pit 14 to 15 feet behind the take-off marker which will probably be six to seven feet in front of the hurdle. Now, the jumper should drive off over the hurdle, using step action and he should hold his lead knee aloft as described previously. He should see that he does not lean too far back in the take-off and keep his body canted forward throughout the ride. The jumper should not reach down for the pit, but should allow his body weight to fall all the way down on his flexed knee in the sand. This will help to develop the leg muscles.

A goal of 14 to 15 feet should be set during this practice and the jumper should not compromise himself by cheating on this distance. This practice should be repeated three or four times weekly and 20 to 30 times each day. The step technique should be used when the standing hop step and jump is being practiced. When the jumper is ready to put the form together he should always set out cloth markers indicating his intermediate goals. In the beginning the first markers may be spaced at 14, 11, and 14 feet, then 15, 12, and 15 feet

and later at 17, 13, and 16 feet. In setting out the markers the same proportions should always be maintained. The jumper should shoot for 19-14-17, which is a very respectable 50 foot leap well within the realm of possibility for many 22 foot broad jumpers.

Some known data on how various jumpers of the past spaced their leaps follows :

Jumper.	Hop	Step	Jump	Total.
Da Silva	18-6	14-6	20-2 5/8	53-2 5/8
Tajima	20-4	131-1/2	19	52-5 1/2
Togami	19	14	19-2	52-2
Brown	18-6	12	20-5 1/2	50-11 1/2
Romero	20	15	15-4 7/8	50-4 7/8
Metcalf	18-6	13-1	20-4	51-11
Ganslen*	19-6	13-1	16-1 7/8	48-8 7/8

Concluding Remarks

A jumper should remember to hop as low as possible, commensurate with the speed he is using in order to keep the landing shock minimal and to conserve momentum. He should use his arms freely and try to keep them away from his body since they may be the key to his success. Balance and arm action are independent functions in this event. Each action should be made deliberate and rhythmical. The hop should be kept within limits, for too much hop will kill both the step and the final jump. A jumper should never hop more than 20 feet and never less than 18 feet. He should try to get at least 32 feet on the first two efforts and let the final jump take care of itself. In this way he can make 45 feet with a 13 foot jump. Work on form should be emphasized. The jumper should think before he leaps because once he is off the board he will not have any time for thinking. In this event control should never be sacrificed for speed. At the present time there are three places open in the 1956 Olympics in the hop step and jump.

* In this competition Ganslen had five jumps fair over 48 feet and one foul in excess of 50 feet. Metcalf's pattern is typical of the Australian emphasis on the final jump which puts the jumper in the position of trying to make the greatest distance with the least velocity.
(Courtesy: Scholastic Coach.)

Health Education

DOES YOUR HEALTH GO UP IN SMOKE?

By

E. GILBERT OAKLEY

Thousands of pounds are spent by thousands of people every day on cigarettes and tobacco. Literally speaking, their money goes up in smoke! Because a man, many years ago, discovered a certain pleasure in drawing smoke into his mouth and blowing it out, the lives of countless individuals were doomed (not destined) to be changed from that moment onwards.

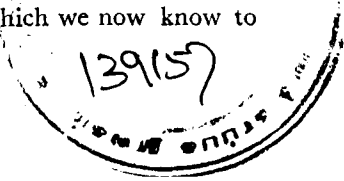
Unwittingly, this person formulated the basis of one of the world's greatest money-spinners. Many fold were to be employed regularly in the picking, refining, rolling and packing of the weed, tobacco, and many others were to be engaged in the distribution of the new device for the business of living. After the hullabaloo had died down, there appeared the reformers-the gentlemen who built up progressive business engaged in leading the susceptible public away from the habit. These concerns still function in various forms, and their cures are many, ranging from the naive suggestion that one "just gives it up" to the more elaborate process of smoking an obnoxious "cigarette" guaranteed to inoculate the palate for ever against the flavour of genuine cigarettes. Then came the psychologists with their positive affirmation, "I WILL NOT smoke any more", the thrift-mongers with their observations on the economics of the matter, and so on. But the menace remains with us.

Long-Term Effects

To-day, a certain section of the deeper-thinking public is becoming uncomfortably

aware not only that their money is going up in smoke, but that there is a distinct and disturbing probability that their HEALTH is also going the same way, in the same manner. It is no longer reasonable to ignore the longterm effects of habitual smoking. Statistics are not compiled for the purpose of encroaching upon the tobacco industry's profits, as so many people think secretly. Emphasis is given to the question of health and the tobacco habit by leading writers and journals with one purpose, that of attempting to save humanity from a slow, insidious menace ranking in its potential lethal effects perhaps only with unclear aggression. This may seem to be exaggerated, but humanity has a habit of making itself a victim to its own short-sightedness-a habit which may be as fatal as the lack of foresight of military and political planners.

The effects of prolonged smoking upon the constitution are now well known. Cancer may result, as also may the danger of coronary thrombosis. Psychologists might argue, in some cases, that the suggestion of these complaints is likely to be the cause of their onset, that the Press do a disservice to the public in over-emphasizing these suggestions. The acceptivity of the public, however, is in the minority, and it is submitted that these suggestions, founded as they are on definite fact, go a long way towards the campaign for less smoking and better health. Such deep-rooted and serious conditions cannot be promoted solely by negative suggestion. There must be existent vital physical factors, one of which we now know to be smoking.



Disproportionate Risk

Perhaps smokers do not pause between puffs to analyse just WHY they smoke. If they did, doubtless they would decide that the risk they run is disproportionate to the benefits which accrue from indulgence.

Let us face up to the question, as realists, for once, and carry out our own investigation. We smoke because :

- a. A cigarette in hand is like the baton to the conductor, the pen to the writer, the rifle to the soldier. It gives confidence.
- b. We enjoy the sensations embraced in lighting and taking the FIRST puffs only.
- c. We think that it steadies our nerves, and that we would go "all to pieces" if we did not smoke.
- d. It gives us a feeling of "having something to do" when our intellects desert us or we are temporarily unoccupied.

The human body is essentially a "liquid" thing. That is to say, it is soft and flowing, resistant and pliable. The introduction of such an element as fire and smouldering substance inducing smoke to enter and to mix with the fluid compositions of the body is, to say the least, a fantastic procedure, and yet smoking is all that.

Nature has seen to it that all the functions of the body are neatly and thoughtfully designed, but never in the scheme of things has provision been made for the inhalation of a smoke that leaves a deposit upon the lungs or so affects the blood stream as to retard the action of the heart. And so, in the final analysis, one can see that smoking is not a product of natural law; rather is it a by-product of the MIND.

Springs From The Mind

Since smoking springs from the mind of its original instigator, it is not a process intended

by Nature for the benefit of mankind, otherwise it would have been numbered in the beginning among the other senses of hearing, seeing, touching, and the rest. Smoking is a sixth sense cultivated by man, serving as a substitute for either complete or partial absence of the other senses, or as an accessory to them. Strangely enough, however, it does not assist the other senses in their correct functioning, in spite of the popular conviction that it does.

Smoking does not improve our sight, assist our hearing, sharpen our taste, make keener our sense of smell, or strengthen our ability to feel. Smoking impairs our eyesight, damages the tear-ducts by incessant irritation, forms wax in our ears, causes excessive perspiration, poisons our palate against the more pleasant tastes, interferes with the sense of smell, and weakens our physical grip and the steadiness of our hand. Thus the five senses are sacrificed to the sixth sense, and from the damage done our susceptibilities to cancer and thrombosis are heightened.

No dope or drug is adequate compensation for lack of will-power or strength of mind. Certainly, no dope or drug is a fair exchange; for vitality and good health. The respiratory system in its original conception did not envisage the action of constant inhaling and exhaling common to the inveterate smoker. This is extra work put upon the body, in addition to normal breathing. The lungs and the heart work overtime, for the smoker STILL persists in breathing! The mucous membrane of the nose is in-flamed by the flow of nicotine-laden smoke in the case of those whose habit it is to blow smoke down their nostrils. The larynx and epiglottis are injured by constant and unnecessary coughing in later years. All the chaos is caused by virtue of a fixed idea: "I must have a cigarette-or cigar-or pipe of tobacco".

A bright eye, a clear complexion, a quick insight, all these fall victim, sooner or later, to the tobacco habit. What quirk of human nature insists on the destruction of these highly and wholly desirable qualities? Nothing more nor less than a compulsion to do as others do, in the firm conviction that it is "the thing to do". The smoker is a slave to habit acquired by watch kept on his fellow-beings, by desires fostered in adolescence to be "grown up," and by pretence, in adulthood, to sophistication.

Nothing which goes against natural law can be right. If smoking is not an accessory to natural law, then it cannot be right. Man cannot take the law of Nature into his own

hands. There are penalties for this that carry the death sentence. Unhappily, there is no court of appeal once the crime has been committed.

If the danger signals were not showing, there would not be such a hue-and-cry. Advancement in ways of living embraces all those things which are deemed responsible for, or likely to be contributory to, illness and the cessation of life. Smoking has been found to be one of these things. Where there is smoke, there is fire. It speaks for itself.

By Courtesy—Health For All
August 1955.



“ IF ”

(WITH APOLOGIES TO KIPLING)

If you can keep your health when all about you
Are losing theirs and blaming it on age ;
If you do all the things you know you ought to,
Then you don't need to wander down the page.
If you can hike and swim and fish and paddle,
And conquer some big job from day to day ;
If you can pitch a tent and pack a saddle,
You know it's HEALTH makes life and work all play.
If you can have a plain and balanced diet ;
Know sun and water can't be had too much ;
It's free—don't fool yourself and try to buy it,
Good health puts on “the skin you love to touch !
If you can sleep all night with windows open,
And walk 10 miles without an ache or pain,
You'll find you need no pills or other dope'n
You'll live long years to do it oft again.
If you can curb the vain desire to hurry
And calmly walk while others madly run ;
Go slow, keep cool, relax, let others worry,
Then you'll be going strong when they are gone.
If you can make health rules a daily habit,
And yet don't let them be your only aim ;
To live life to the FULL those years you have it
Is better FAR than honour, wealth or fame.

—Anon.

TEN GREAT MEDICAL DISCOVERIES MAKE FOR LONGEVITY

If modern man is living a healthier and longer life than his ancestors, it is largely because of the astounding progress medicine has made in a comparatively short time.

Recently, one authority compiled a list of the ten greatest medical advances in history. All have been made since the 16th century, and six in the last century-and-a-half. They are :

1. The discovery in the late 1800's that germs cause infectious disease.
2. The development of the smallpox vaccine, first used in 1798.
3. The discovery in 1628 of how blood circulates.
4. The development of anaesthesia in the early 19th century.
5. The invention of X-ray in 1895.
6. The discovery in 1879 of the transmission of diseases by insects.
7. Tying-up of blood vessels to control haemorrhage, first used in the 1500's.
8. The conquest of scurvy in 18th century.
9. The invention in 1819 of the stethoscope.
10. The development in the last 25 years of the sulfonamides and antibiotics.

This medical historian believes that the greatest single advance was that made by a Frenchman, Louis Pasteur ; a German Robert Koch ; and an Englishman, Joseph Lister, when they proved germs infect human beings and suggested the means for controlling the germs.

Hunt for Chemicals

Once scientists knew that micro-organisms can cause disease, they began a hunt for chemicals that would destroy the germs without harming the human body.

The set stage was for the development of the sulfonamides, the early antibiotics like penicil-

lin and streptomycin, culminating with the broad-range antibiotics such as bristacycline.

Edward Jenner's smallpox vaccination established inoculation as a method of preventing disease. Millions of lives have since been saved because vaccines have been developed against epidemic diseases such as cholera, yellow fever, diphtheria-and finally, poliomyelitis.

Blood Circulation

William Harvey's discovery of how blood circulates ended centuries of false notions about human physiology and began a whole new era in medical science.

Surgery could not exist if Ambrose Pare, the great French surgeon, had not introduced the idea of tying a string around a blood vessel to shut off the flow of blood. Nor would surgery be what it is without anaesthesia, which was developed by three United States workers.

The discovery that insects could transmit diseases to human beings has been called “the greatest advance in preventive medicine since vaccination.” By wiping out mosquitoes, for example, whole nations have been freed of malaria.

Because Diagnosis is as important as treatment, the stethoscope and the X-ray have earned their high places in history by providing the physician with the means of detecting abnormal conditions within the living body.

When an English ship's surgeon found that less than a cup of orange juice a day would prevent scurvy, he established a concept of food deficiency diseases which has led to the conquest of such scourges as beriberi, rickets and pellagra.

There have been other great medical discoveries, and there will be more, but most authorities agree that without the ten discussed here, we would still be living in the dark ages of medicine.

Unveiling of the bust of the late Mr. Harry Crowe Buck at the College on the 25th July '55

Tributes to the services rendered by the late Mr. H. C. Buck to the cause of Physical education, not only in Madras State but in the whole country, were paid by various speakers, including Dr. A. Lakshmanaswami Mudaliar, Vice-Chancellor, and Sir Samuel Runganathan, when a bronze bust was presented by the College Alumni Association, on the occasion of the observance of the memorial day.

Dr. A. Lakshmanaswami Mudaliar unveiled the bust. Sir S. Runganathan presided on the occasion. There was a large gathering of students and others interested in physical education.

Sir S. Runganathan welcomed Dr. Lakshmanaswami Mudaliar and others present and gave a brief history of the origin and growth of the College of Physical Education which owed its existence to the late Mr. Buck. The Council of the YMCA's of India, he said, established the institution in 1920, as a 'project service to the youth of our country in the field of physical education'. The Council was extremely fortunate in securing the services of Mr. Buck as 'a founder and first principal of the institution'. It was Mr. Buck who, almost single-handed, built up the institution from very small beginnings with all the pioneering zeal of a missionary in the cause of physical education.

Mr. Buck started the institution at the Central Y. M. C. A., Esplanade, with just five students. But gradually he was able to raise it to the status of a college and during the 23 years he served it, he gave it impetus and vision and it developed into a 'centre of physical education of national importance with university recognition'. To-day, the college

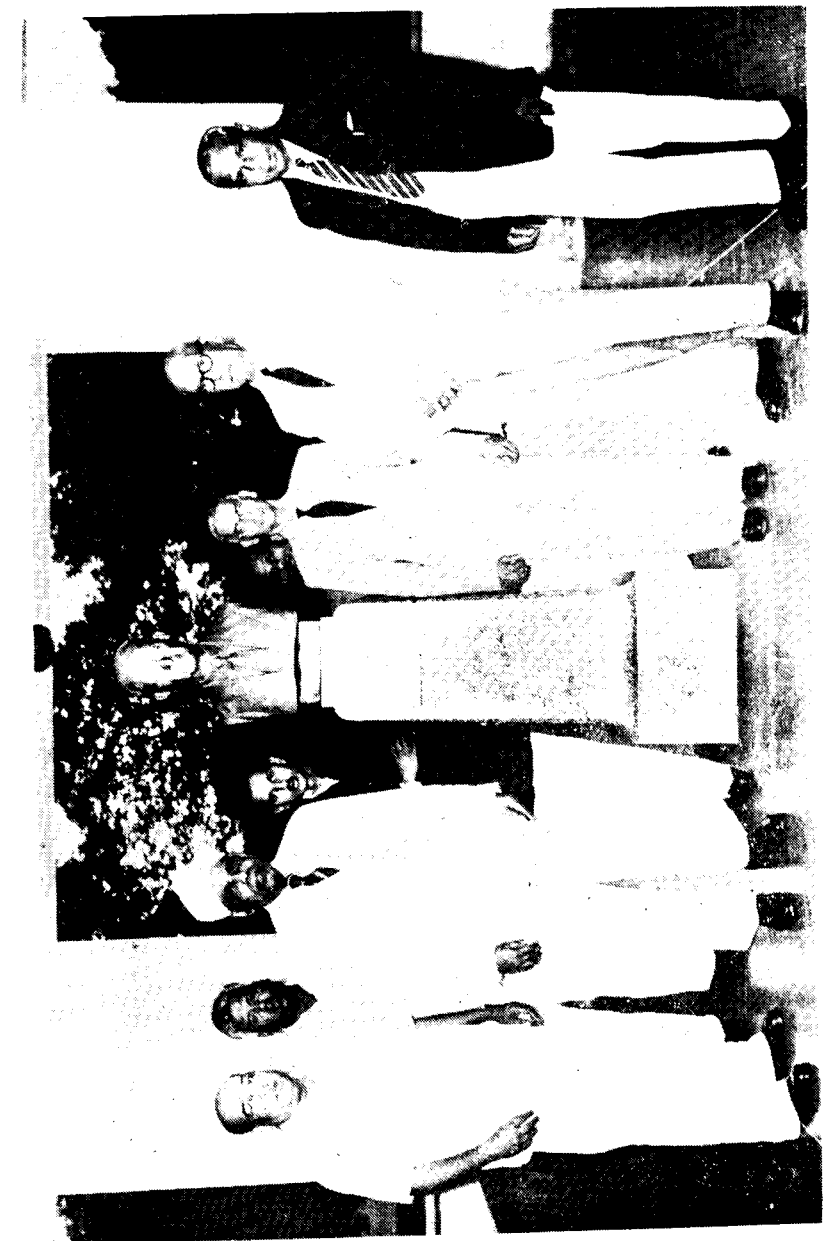
had, on its rolls, 340 students drawn from all parts of India and Ceylon, including about 80 women students.

Sir Runganathan recalled his association with Mr. Buck and said that he knew Mr. Buck fairly intimately from 1920 onwards for over two decades and he knew something of the prejudice--at any rate in the early years--discouragement and other difficulties he had to face. But nothing daunted him. "Mr. Buck," Sir Runganathan said, "had the spirit of a crusader fighting for a great cause. He overcame all opposition gradually and succeeded in winning recognition and acceptance from the general public of the system of training given to young men and women as leaders in physical education."

Mr. Buck's labours, Sir Runganathan added, had borne abundant fruit as they witnessed all around them. The College had trained and sent out over 3,000 physical education leaders to all parts of India and also some countries in Asia. And there was general recognition now that the college was making a significant contribution to national physical fitness which was so very essential for the general progress of the country and for the preservation and maintenance of its strength. It was appropriate, therefore, that the old students of the college should perpetuate Mr. Buck's memory by installing a bronze bust of his in the college.

Work of Memorial Committee

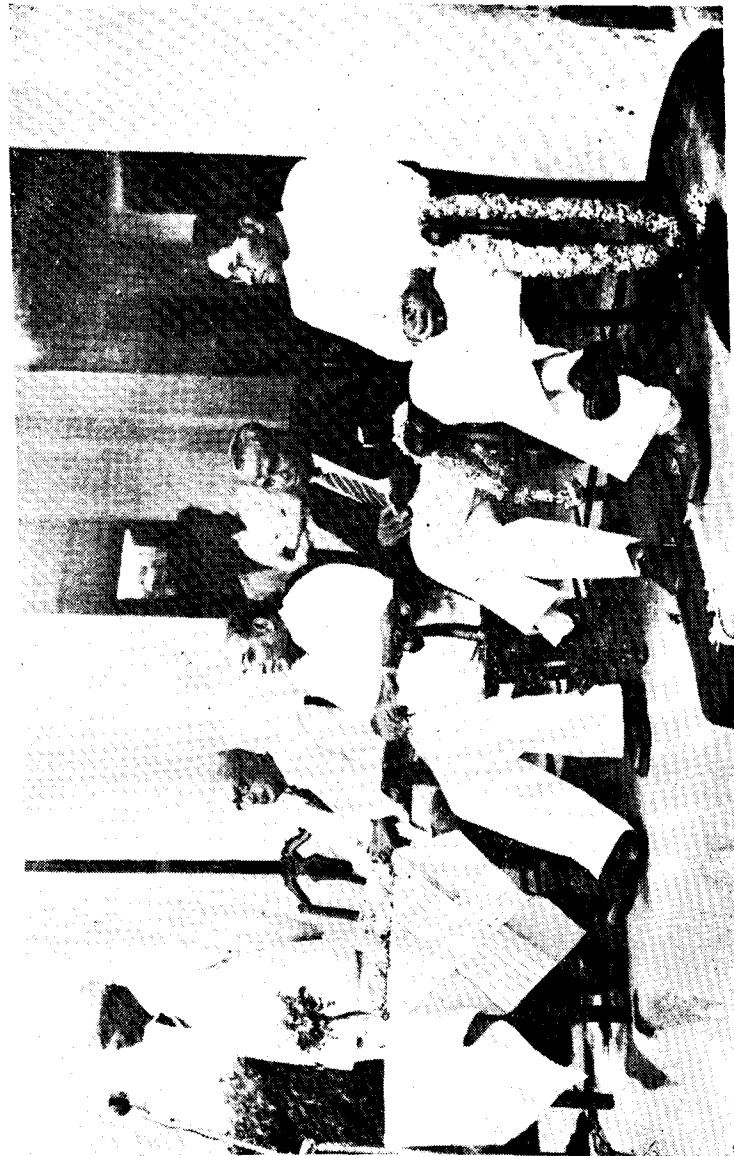
Mr. P. R. Subramaniam, President of the Alumni Association, in presenting the bust, gave a short account of the work done by the Buck Memorial Committee which was formed after Mr. Buck's death in 1943. First a



BUCK'S BUST AT THE COLLEGE LOBBY



UNVEILING BY SIR A. LAKSHMANASWAMY MUDALIAR



TRIBUTE BY SIR A. LAKSHMANASWAMY MUDALIAR

memorial theatre was built in 1944. Later a memorial publication was brought out. Now, the Committee managed to present to the institution a bronze bust of Mr. Buck. The bust, he said, was made by Nagappa & Co., It was proposed to endow memorial lectures in the name of Mr. Buck for which a sum of about Rs. 2,000 to Rs. 3,000 was necessary.

Mr. C. C. Abraham Principal of the College, accepting the bust, said that, after the death of Mr. Buck in 1943 diverse opinions were expressed as to how the college and its alumni might perpetuate his memory. Many people were of the opinion that the beautiful campus was itself a fitting tribute to his memory. The College was now deeply indebted to the alumni and the Alumni Association which has spread to all parts of the Indian Union and also to Pakistan, Burma, Thailand and other parts of the East. The place in the college premises where Mr. Buck was buried would gradually become a shrine. The bust would serve to remind the alumni of the achievements and aspirations of the late Mr. Buck.

Mr. A. Padmanabha Naidu and Mr. P. M. Joseph also spoke of the great qualities of Mr. Buck and his achievements in the cause of spreading physical education.

Dr. Lakshmanaswami Mudaliar recalled the days of his early education and also the days when he and a few others were 'instructors' in the Medical College, when the Physical Instructor of institutions would appear only when the Divisional Inspector happened to inspect the institutions. They then picked up a few boys whom they had trained to make a demonstration. The others did not know what physical education or demonstration was. One could easily imagine now what difficulty Mr. Buck should have had in popularising Physical education at such a time.

"We used to have", Dr. Lakshmanaswami Mudaliar said, the annual sports meet. We

had the usual games and all sorts of events. But I must confess—having been for sometime President of an Athletic Association—that we never realised the scientific method of play and precision with which these events should be associated. It was left to Mr. Buck to infuse a new spirit in every college with regard to this annual event so much so that gradually large crowds, both of students and staff and also outsiders used to assemble on those historic occasions at least in some of the older institutions.

Dr. Lakshmanaswami Mudaliar referred to the great interest Mr. Buck took in the College of Physical Education and the anxiety he had for getting recognition from the University for it, and said that at the instance of Mr. Buck he moved resolutions both in the Senate and the Academic Council that they should grant approval for according recognition to the institution. Unfortunately, it was not possible for him to visualise when the recognition would come. He was now glad that the college had been affiliated to the University. As the Chairman of the Secondary Education Commission it was his privilege to tour the whole country and wherever he went he was able to meet some member of the College occupying a prominent position in the field of physical education and reflecting with him the good days when Mr. Buck was conducting the affairs of the institution. As a benefactor, Mr. Buck had left a great memorial in the vast number of young men and women who had gone to the four corners of India and other parts of Asia to carry his message of physical education. They should thank Mrs. Buck who was also responsible for organising and fostering that institution for the development of physical education among the women of our country.

"I am sure", Dr. Lakshmanaswami Mudaliar said, "their names will always be remembered. India has always been grateful to its true benefactors irrespective of caste,

creed, colour or nationality. I am sure that ancient heritage will live for ever. Whoever it be, whether called a foreigner or not, one who has been a true benefactor will, by contact, become an Indian, if not by birth, surely by adoption of his memory in this country. I can assure you that Mr. Buck will be one such".

Sir Runganathan, in the course of his concluding remarks, said that the importance of physical education was now fully realised. Various schemes were being put forward for

the expansion of physical education in schools and colleges and for the introduction of community recreation in both urban and rural areas. "I do hope", he said, "that the students of this college will accept the challenge of these new and enlarged opportunities which are coming and will seek to serve the country in the cause of physical education in the true spirit of the great founder of this institution".

Mr. J. P. Thomas, convener, proposed a vote of thanks.

Report by Mr. P. R. Subramaniam President of the Alumni Association.

Before I present the bust of Mr. Harry Crowe Buck to the college I want to take this opportunity to give a short account regarding the Buck Memorial Committee and its work. There were many prominent disciples of Mr. Buck in the committee like late Mr. Mia, L. K. Govindarajulu, Padmanabham Naidu and A. K. Singh. Last year I came in with Mr. Easaw as Secretary. In the first place I feel I am very fortunate to be the Chairman of the committee this year also and Mr. D. S. Luther is the Secretary. I am one of the early contacts of Mr. Buck. It was he who picked me up as a promising athlete after my successful $\frac{1}{4}$ mile race in the Naval, Military and Air force tournament in the year 1926. Little did I think, nor had I the faintest idea then that in less than 4 years I would be chosen as one of the band of his followers to enter a new gate which he opened to a pathway leading to a new profession. From that time until his death on July 24, 1943 I have had the good fortune to be associated with him very closely. It is now 12 years since he died.

Crowe Buck was a great man, a great educationist, even more than any of those attributes he was a "Gentleman". Immediately after his death, his colleagues & disciples found themselves in a peculiarly new atmosphere, the atmosphere which many of us would have

experienced when some one very near and dear passed away. Even though we were in a perturbed state of mind, all of us believed very firmly that in spite of this big calamity the future was full of 'Hope'.

During the life-time of Mr. Buck, there was only one leader and that was Mr. Buck but since he left, the leadership has passed on to so many miniature Bucks, and these have been carrying on with vigour and fervour the great task which he had commenced.

While this work of the construction of the edifice of Physical Education has been our first duty, there was also in our minds the duty of commemorating the life and services of this great man. We were convinced that no additional structure was needed to memorialise the name of this noble gentleman; for even on the day he left us the little thatched hut on a small piece of unwanted ground with which he began years ago, had given place to the gracious buildings and the many sports-fields, symbolising Crowe Buck's ideals which will live for ever in the memory of the students who have carried his teachings to the farthest corners of India.

The first dedication to his memory was the Crowe Buck Memorial Theatre constructed on August 1, 1944. We must be thankful to Sri Anantharamakrishnan who initiated this great

gesture by a generous contribution of Rs. 5000/- and its sanctity is enhanced as it was designed and built by no other person than his wife-Marie Buck, whose good influence in the life, work and the achievements of Mr. Buck, should also be recognised and remembered.

We, his close disciples and his colleagues, who revere his name wanted to perpetuate the memory of 'Crowe' in many other ways. One of the ways we thought of was in the form of a book which should contain the history of his life, and the aspirations and achievements of this great American who chose to come to a British administered province in ancient India to preach the gospel of health and Physical Education, and who by his life and example, demonstrated how through his ideals and in his fields, Hindus, Moslems, Christians and many others belonging to different religious leanings could live in harmony and each strive in his own way to come nearer to that universal God who all adore. The effort in this direction culminated with the publication of the Buck Memorial Volume, a tribute which will go down in the history of Physical Education.

"We have to acknowledge our thanks to Dr. G. F. Andrews of revered memory and Mrs. Kamala Singhe, Mr. Kuruvilla Jacob, Mr. C. A. Abraham, Mr. L. K. Govindarajulu, Mr. A. K. Singh, Mr. Narasimhachari and Mr. P. M. Joseph for the hard and laborious work in bringing about this publication. Though it will not be good to single out any person in this connection, I would like to mention the name of Sri L. K. Govindarajulu who had the entire responsibility of editing the book.

Having brought this publication we felt that it was equally our duty to leave behind some "replica" of this noble soul, so that it will be a reminder to all the old students not to lag behind in the special task that we have taken

out and so that it will be a source of inspiration to the many generation of students who may have the privilege of passing through the College as well as an object of admiration to all that may visit this institution testifying to the courage and perseverance of the man who could accomplish so much from so little.

This beautiful bronze bust was the only answer to that great desire. However small and insignificant in size this bust may be, you will all agree that what counts in any offering is the goodwill and the sincerity of the sacrifice of innumerable Alumni, who hold no enviable positions in their various spheres of service. It was one of the ambitions of Mr. Buck that those who accepted his gospel and profession would be able to share the responsibilities in the field of Education equally with others.

Now coming back to the Chapter of the bust it must be accepted that great credit is due to the Sculptor who has made it resemble so closely Mr. Buck. The artist has worked out his task in such great detail that it is almost life-like. The credit to this magnificent work goes to Mr. Mani Nagappa son of that great Artist M. S. Nagappa and we are very thankful to him and his brothers, Ramachandran and Jayaram for their share of work in this connection. Our gratefulness to them for their contribution to to-days' function, is not only in the creation of the replica of the master but also for their generosity. We are all aware that for works of art there is no price that can be paid. I must mention that but for the full co-operation and sympathetic consideration of our financial resources and the substantial concession that has been allowed it would not have been possible to present this bust and thus pay even this slender tribute to the mighty personality of Mr. Buck.

May the soul of Crowe Buck rest in peace, may his spirit, dauntless spirit, fearless spirit, infuse itself in the minds of many of his disciple, and in the minds of every one who may choose

to enter this new path through the new gate which he has opened to a new but a noble profession – the profession of Physical Education, so that the great work for which he lived and for which he died may be carried on with the same devotion.

Before I close I would like to inform you all that we in our profession small and humble as we are, have one more desire to collect a small amount of 2 or 3 thousand rupees and endow perpetually 'Buck Memorial Lectures' by some eminent men year after year. I cannot say when we will reach this goal - but I know that

Speech by Sri A. Padmanabham Naidu

I deem it a great privilege to associate myself with this function. It possesses special sanctity for me in-as-much as it has offered me an opportunity to join you in honouring the memory of an illustrious friend of our country and the father of physical education in India. I am indeed greatly indebted to the organisers of this function for permitting me to join the chorus of tributes that are paid to him. Having had the good fortune to be the pupil of the great master, I had always held him in high regard and looked upon him with respect and affection.

While the multi-coloured facets of his life shone with brilliance from every angle, as a teacher, as a parent, as a missionary and above all as a friend, philosopher and guide, the late Mr Buck was an ideal to be followed by every right thinking individual not to mention the flowering youth of our country. He was essentially a teacher and he abhorred the idea of indiscipline. The gospel of physical education that he vehemently preached and practised despite his growing age, was symbolic of the innate faith that he had in this sphere of education. He always upheld the cause of justice and truth and he was singularly pure from the weakness of jealousy and favouritism. For integrity of character he had few equals.

we possess his tireless spirit, his spirit of perseverance and the spirit of the real sportsman who will not give up a race.

Lastly I take this opportunity to thank all the members of the Alumni who have given me this great opportunity and the privilege of being their President and speak and act on their behalf.

Ladies and gentlemen, I have now great pleasure in presenting this "symbol" of Mr. Buck to the Y.M.C.A. College of Physical Education and request the Principal to accept our humble gift.

He moved like a colossus sweeping aside all the obstacles that lay in his path from conservative educationists who considered the innovation that he was introducing in the realm of education, as fruitless and revolutionary. In his task for making physical education, an integral part of education, he neither flinched nor faltered until the goal set before him was reached. His contribution to this phase of education was great. His passionate zeal for the promotion of this activity which is most essential for successful living carried him towards success and, if to day, we have in our country, various institutions promoting this activity, it is because, the torch that he lit at Madras has spread and has lit many a home with love for physical activities. He knew that India needed a complete regeneration in every branch of activity and being an authority on this subject, he set to work in his most inimitable manner slowly and silently at the beginning steadily and steadfastly after some-time and speedily and effectively in later years of his life

Among the galaxy of patriots that fill the firmament of India Mr. Buck could claim a dominant place by virtue of his unstinted service to the cause of physical education. In the pages of India's history his name will be

written in letters of gold. This magnificent edifice in which we are assembled this afternoon is the fruit of his labours and it has been the citadel of many a leader in physical education who has been doing yeomen service. He infused confidence in his students with his honesty of purpose, in his unselfish behaviour and his deep love for duty and discipline.

To day, our country is free and we breathe the refreshing air of independence. We have every reason to be proud of him, the architect of physical education in India whose spirit of goodwill towards our national development will remain fresh and green not only amongst us, the present generation, but also the generations that are to follow.

What kind of tribute would he have expected from his students had he lived this day is a question that surges in our hearts - Neither

oral nor floral tributes would satisfy him. He was a man of action who richly believed in his teachings and he devoted himself wholeheartedly to the task of making others enjoy the fruits of his labours and usefulness of his convictions. Therefore we cannot but think of a better tribute than follow the mission of his life assiduously and exert that benevolent influence that is needed for the development of the youth of our country into useful citizens capable of shouldering responsibilities and discharging the duties entrusted to them diligently and efficiently.

The death of Mr. Buck has left a void which still remains unfilled and perhaps will be so for a long time to come. May his soul rest in peace and may his mission in life flourish with ever increasing vigour.

Mr. Buck is dead - Long live Mr. Buck.



COLLEGE NEWS

By

C. C. ABRAHAM

Enrolment

Our college is entering on its 36th year of service. It reopened on 1st July 1955. Enrolment this year was another record in our history. We admitted 301 boys and 99 girls and after weeding out 47 boys and 15 girls we have on our rolls 254 boys and 84 girls. Of the 338 students, 40 students take the Diploma Course, 76 students take the Higher Grade Course and 222 students take Lower Grade Course.

As usual our students come from all parts of the Indian Union and Ceylon. This year we have students from Kashmir, Punjab, Pepsu, Rajasthan, Orissa, Delhi, Ajmer, Uttar Pradesh, Madhya Pradesh, Bhopal, Andhra, Mysore, Travancore-Cochin, Madras and Ceylon. We have 58 students (33 men and 25 women), from Ceylon which is the highest number that we ever had from Ceylon.

Ours is truly an All-India Institution. Practically every state in the Indian Union is represented. Practically every religion is represented. Over 15 languages are spoken. In spite of the differences, it is a happy experience to see students from all over India and Ceylon living like members of a happy family. This is indeed one of the blessings of a college like ours. It is our hope that in the coming year we will be able to attract students from some of our neighbouring countries including Burma, Thailand and Malaya. Our ambition is to build ourselves into an International Institution to serve this part of the world.

Staff

Mr. S. D. Chopde who had joined the Springfield College, Massachusetts, U.S.A.,

successfully completed the requirements for the Master's degree in Physical Education and returned to India in December and joined the staff. He gained very valuable experience at Springfield. The college is highly benefitted by his experiences and several new projects are under way, particularly, the evaluation of the various offerings and activities of the college, the revision of the Post Diploma syllabus, institute for Counselling and Guidance etc. Mr. Chopde is also carrying on the heavy responsibility of being the Bursar of the College.

Ted Arnold is away in the U.S.A. on a year's furlough. With the help of Messrs: Easaw and Hubert Dhanaraj, Ted took a Basketball and Volleyball team, toured the whole of South India, visiting important towns and Y.M.C.As. This tour was a great success. Several requests have now come from various schools and colleges in South India that a similar tour may be arranged while the schools and colleges are in session. Ted Arnold represented India as a delegate at the Paris Centennial and news has just come that he has just reached the U.S. We wish Ted Arnold, Louine Arnold and Teddy Arnold a restful time in the U.S. We expect them to be back in June 1956.

Buck's Bust Unveiling Ceremony

The Alumni Association of the Y.M.C.A. College was able to raise a sum of Rs 5,000/- to commemorate the late Mr Buck, Founder-Principal of the college with a bronze bust to be installed in the lobby of the college. The unveiling ceremony of the bust took place on the 24th July 1955. A very distinguished gathering of the friends of the late Mr. Buck and the well wishers and friends of the college



BUILDING

PAVILION



STUDENTS AT WORK

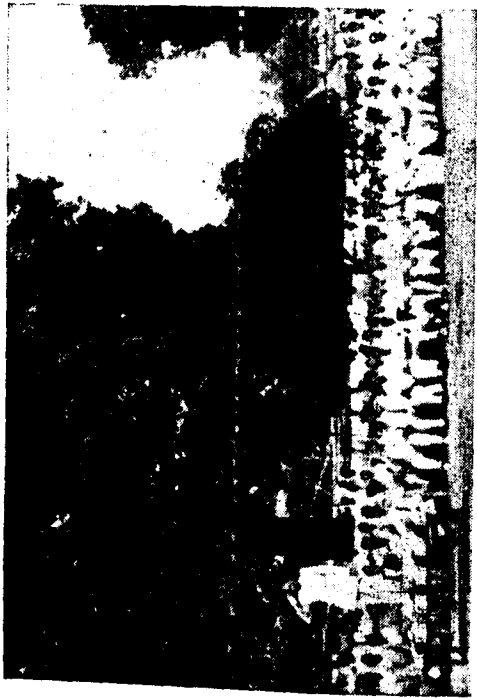
STUDENTS AT WORK



Building
Pavilion



Y. M. C. A. Centennial Celebrations at Royapettah Y. M. C. A.



WORLD HEALTH DAY



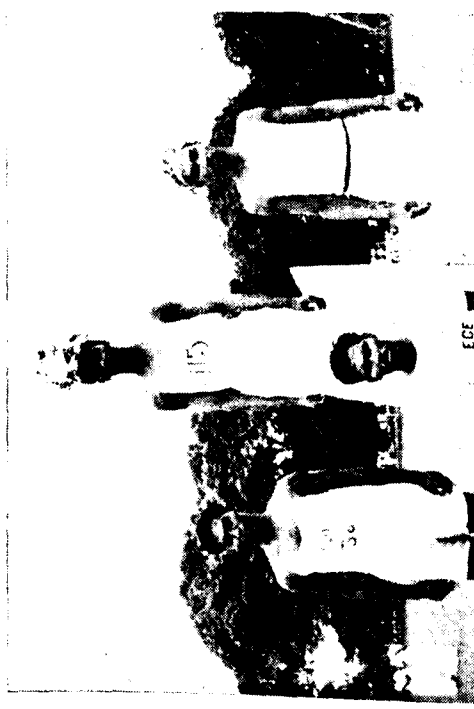
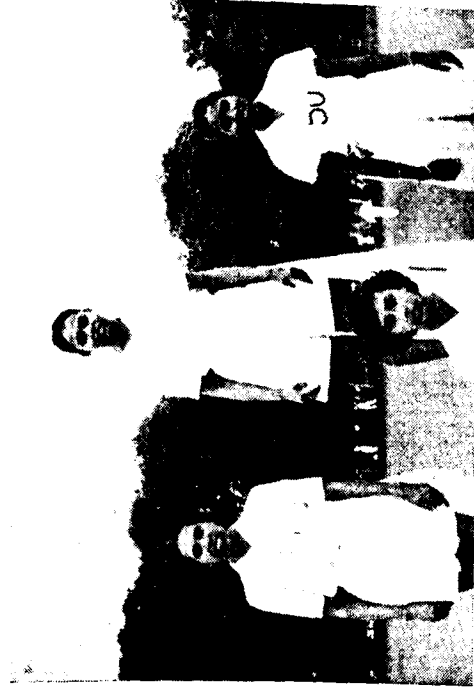
Beautifying
Hostel



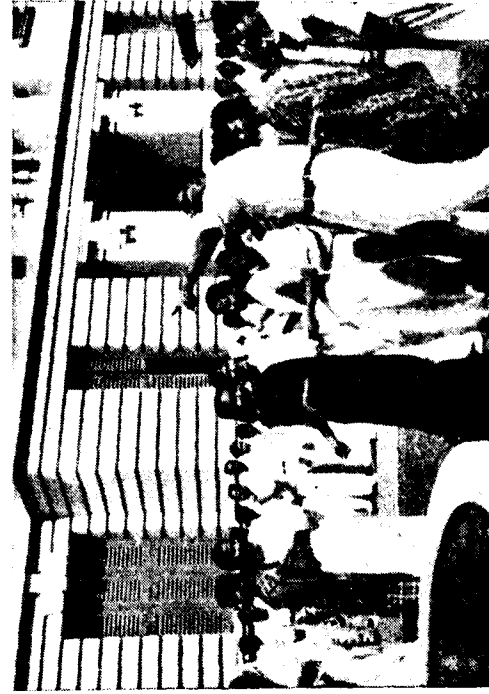
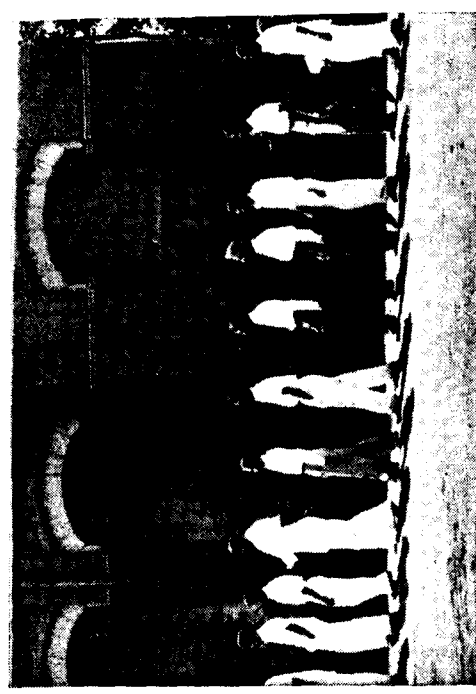
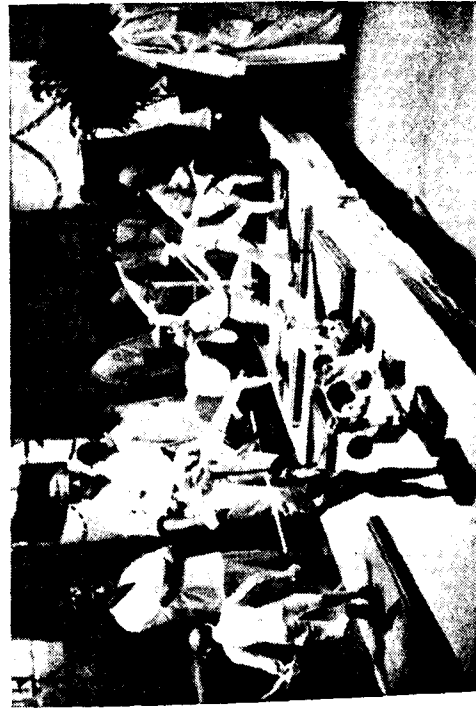
Cleaning up



PROJECT SPORTS



MEDICAL EXHIBITION



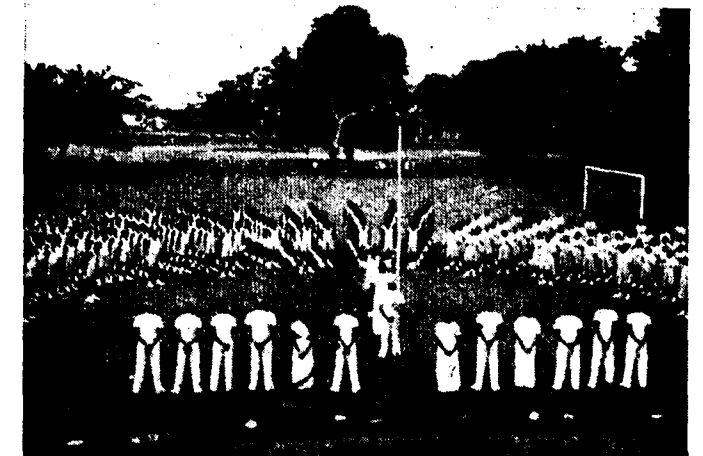
MEDICAL EXHIBITION



VANAMAHOTSAVA

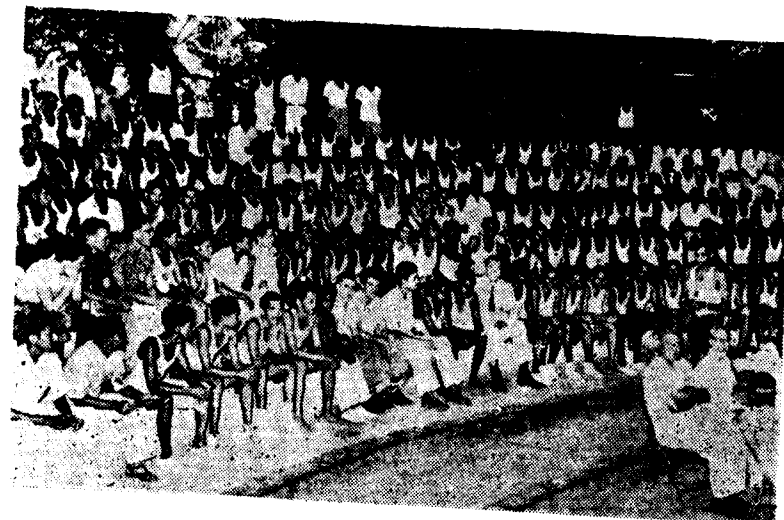


"INDEPENDENCE DAY,"





Jessie Owens Watching "Conditioning" By Madras Athletes



Bob Mathias with the College Students

were present on this memorable occasion. Sir Samuel Runganathan, President of the College presided over this function. Sir A. Lakshmanaswami Mudaliar, Vice-Chancellor of the Madras University unveiled the bust and paid a glowing tribute to the service rendered to the cause of Physical Education by the late Mr. Buck. Mr. P. M. Joseph and Mr. A. Padmanabhan Naidu, two distinguished Alumni of the college also paid their tributes. Mr. P. R. Subramoniam, President of the Alumni Association presented a brief report of the Buck Memorial Fund. The Principal of the college accepted the bust and assured the gathering that the bust will be a constant reminder to all those who passed through the portals of the college, of the high ideals of the late Mr. Buck.

World Health Day

World Health Day was celebrated at the college in a very significant way. In the morning there was a clean up of the hostels in which the entire student body both men and women participated. The hostels were swept, cleaned and washed. The surroundings were cleaned up. Every effort was made to beautify the hostels and their surroundings. In the afternoon, the students assembled at the Buck Memorial Theatre and listened to a very interesting talk by Dr. P. V. George of the Public Health Department, Madras on "Water as Food."

Vana Mahotsava

Vana Mahotsava was celebrated at the college in a fitting manner. Several new trees were planted. The entire student body participated in this function. We had unprecedented record of continued rain from May onwards during this year. Our campus looks green and beautiful and we feel sure that it will grow more and more beautiful as we plant more and more trees each year. It is our hope that our students will take with them the spirit of Vana Mahotsava wherever they go.

Onam

Onam was celebrated in a festive way at the College by the Student Association. There was a grand feast in the men's hostel. In the evening there was a variety of entertainment at the Buck Memorial theatre in which songs and folk dances of Malabar were featured. This was a very happy occasion for the staff and students of the college.

Y.M.C.A. Centennial

The Y.M.C.A. Centennial was celebrated by the College in a very fitting and dignified way on the 22nd August 1955. In the morning, Mr. Chenchiah, a veteran Christian leader addressed the students. In the evening, the entire student body participated in the Centennial programme organised by the Y.M.C.A. in the city. There was an interesting march past by the students of the college and other Y. M. C. As symbolising various activities promoted by the Y. M. C. As in the city. The salute at the march-past was taken by Mr. V. R. Rajaratnam, Inspector General of Police. Mr. Govinda Menon, Justice of the Madras High Court welcomed Mr. Rajaratnam and the vast gathering that assembled at the Royapettah Y.M.C.A. There was an excellent demonstration of Physical Education activities by the students of the Y.M.C.A. College. Following this there was a fine portrayal of the growth and development of the Y.M.C.A. from the time it was founded by George Williams.

Inauguration

The Inauguration of the 36th session of the college took place on August 25th 1955. Mr. N. D. Sundaravadivelu, Director of Public Instruction, performed the inauguration. The Principal presented a brief report about the college. He thanked the Government of Madras for transferring the management of the Y. M. C. A. College on a permanent basis. He also mentioned that a sum of one lakh of rupees has been sanctioned as a loan to the

college by the Government of India to construct a women's hostel. Plans are ready for the construction of the hostel. It is our hope that the students who come next year will be living in a pucca hostel with the necessary sanitary arrangements, bathing facilities etc. The college expects a grant of Rs. 50,000/- at least from the Madras Government to build this hostel.

The Principal also reported that the college offered a course in Youth Leadership and Community Recreation. An illustrated Prospectus was printed and widely circulated. Since no student applied for admission, the course could not be offered. This is very much regretted. It is our hope that Social Agencies, Community Projects and Industries will become vitally interested in providing a programme of Recreation for our people. The Post-Diploma Course also did not attract any student this year. This is again very disappointing. We still hope that Universities and Colleges will insist on higher qualifications for their staff. The syllabus for the Post Diploma Course has now been revised and it is our hope that this Course will draw students, in the coming years.

Mr. N. D. Sundaravadivelu, Director of Public Instruction paid a great tribute to the excellent service rendered by the college in the past 36 years and wished the college every success in the future.

Project Sports

Our students organised a very successful Project Sports meet on 26th August. The ceremonies were gone through in Olympic style. The arrangements were very satisfactory. Officiating was of a very high degree. Standard of performance was very good. Students enjoyed the afternoon. The college also conducted an Open Sports Meet. Nearly 150 athletes from the various colleges, Police and the Railway took part. A very high standard of performance was witnessed, particularly in

the long distance races and the high jump. Outstanding athletes were Joseph and Royappan from the Police, Kirupairajah from the Y. M. C. A. College and Muthiah from the Central College, Bangalore.

Medical College Exhibition

The staff and students paid a visit to the Medical College Exhibition and spent almost a whole day seeing the exhibits organised in over 20 sections. There were several interesting things to see, observe and study. The department of Physiology was particularly interesting to the students showing the working of the various organs of the human body. The department of personal hygiene and Community hygiene, safety education and first aid were equally interesting. So was also the department of nutrition. The section on maternity and child welfare proved to be very interesting to the women students of the college. The visit to the exhibition provided a very rich experience to the students.

Inter-Church Fellowship

In collaboration with the Y.M.C.A.s in the city, college organised a get-together of the families of the various churches in the city. There was an interesting recreational programme from 2 to 8 p.m. Over a thousand people responded to our invitation. It was a very happy sight to see children, young folks and adults taking part in various recreational activities both indoor and outdoor. Boating was very popular. Light refreshments were provided by a friend of the Y.M.C.A. There was a very interesting Softball match between the American team and the college team. This was witnessed by the entire gathering. The match provided excellent thrills for the spectators. The college team won in an exciting finish. Following the match, the gathering assembled at the Buck Memorial Theatre. An interesting programme of music, songs, dances etc. was gone through. The Y.M.C.A. choir gave several items. The entire

programme was appreciated by one and all. It is our hope to make this an annual feature of college activity and many more would come when we organise a similar fellowship in the coming months.

Water Supply

We are very happy that the College will be getting City Water Supply very soon. The Corporation has given us permission to give the necessary connections for the city water supply from Nandanam Colony adjacent to the College. Plans and estimates are being made to lay the pipes. Our women students are particularly looking forward to the day they will be able to get enough water for their needs. We have also received a grant of Rs. 6,000/- from the Government of Madras for this project.

Leaders Training Camp

This year's Leaders training camp was held at the Malayan Emigration Depot at Avadi. We were happy that we were able to secure the site for our camp. There was enough water supply. There was also plenty of open space conducting the various outdoor activities in connection with the Leaders training programme.

The camp was a great success. The trainees had not only fun but many enriching experiences. We are sure that our students will take with them happy memories of the camp and share their experiences with the boys and girls in our schools and colleges. Camping is education. It should find the important place in the school programme in our country.

Physical Education Institute at Indore

A Physical Education institute was organised by the college of Indore under the auspices of the Indore Y.M.C.A. The Principal along with Messrs Chopde, Thirunarayanan, Hubert Dhanaraj, Easaw and Chacko conducted this institute. Over a 100 trainees were enrolled for this institute. Coaching in athletics, basketball, volleyball and swimming were given.

Special coaching was provided for about 30 women trainees. Instructions in officiating and coaching the major games and athletics formed a very important part of the institute. A sports Meet for the high school boys in the city of Indore was conducted on the concluding day. This was well attended. The institute at Indore was a great success. The college has plans to conduct such institutes at other centres in India.

Jesse Ownes and Bob Mathias at the College

We had the rare privilege of having Jesse Owens and Bob Mathias on our campus in October. Jesse Owens, 4 gold medal winner at the 1936 Olympic Games in Berlin was on our campus from the 10th to the 14th October. His presence on the campus was a great inspiration to the students as well as to a large number of athletes and coaches who watched his performance and listened to his coaching instructions for four days. Jesse Owens was followed by Bob Mathias, twice world decathlon champion. Bob Mathias was given a great reception at the Buck Memorial Theatre on the day that he arrived. He demonstrated the ten decathlon items on the Police track on the 28th and 29th October. A large number of athletes, coaches and spectators witnessed his performances.

Frank Kaufmann - American Basketball Coach on the Campus

Frank Kaufmann, the famous Notre Dame Basketball player, All-Star American Basketball player and professional coach was seen in action at the college for over 12 days from 20th November. His presence on the campus proved to be of immense value particularly to the trainees who joined the training camp and also to the students who witnessed his training programme. Kaufmann is one of the top ranking coaches in America and for the first time we witnessed coaching of Basketball at the top level. Basketball is bound to improve if we can get coaches like Kaufmann. It is our hope that his services will be made available to India for a longer period.

BOOK REVIEW

"PURE AND APPLIED GYMNASTICS"
by A. D. Munrow, B.Sc.
(Published by: Edward Arnold (Publisher)
Ltd., London.)

In countries where the programme of Physical Education has to be largely confined Indoor Gymnasiums owing to climatic conditions, Gymnastic Exercises have always assumed importance. Mr. Munrow who had years of experience to his credit as the Director of Physical Education at the University of Birmingham, has presented in the pages of this book a thorough and authoritative account of General and Applied gymnastics. The presentation is lucid and the illustrations are accurate and apt.

The book is divided into three parts. Part I deals with what is gymnastics, what effects on the body can gymnastics have? and how shall we classify exercises? Part II deals with Pure Gymnastics involving Mobility Exercises, Strength exercises, Endurance Exercises and Skill Exercises. Part III is entirely devoted to Applied Gymnastics wherein important topics like Remedial and rehabilitation gymnastics, sports gymnastics, keep fit gymnastics, Gymnastic in the armed forces, and Educational Gymnastics are dealt with.

Defining Gymnastics as "artificial and systematised forms of exercises designed to produce particular effects on the body" the author gives a scholarly summary of the views of well known pioneers in the field of gymnastics like the ancient Greek scholars, and the later leaders like, Galen, Musculus, Jahn, Ling and Neil Bush. One is greatly impressed at the author's attempt to present a scientific basis for gymnastics as he marshals experimental evidence of present day investigators like Sheldon, W. Saunders, S. Wilson, T. K. Cureton,

Steinhaus, Johl, Sutcliffe, and Canham. Gymnastic is not a science, but it does aim to be scientific and it is in this approach that the author has contributed something specific and original as very few could have done. He summarises his approach in a forceful statement as "It must be strongly emphasised that the intention is not to narrow the concept or practice of Physical Education. On the contrary, it is recognised that physical education has its own social, ethical and physical aims, to which gymnastics will make a contribution." As long as scholars realise that gymnastic is not a substitute, but a supplement to the programme of physical education, at every educational stage, there is scope for a proper development of those who come under its influence.

The author has more than justified his desire to collect under one heading, and to attempt to set out in an orderly fashion, exercises which are basic to body building and training in this book. Page after page, there are specific exercises for a particular part of the body to bring the desired effect. The book is arresting with its wealth of useful material and it is bound to be an invaluable guide to all those who are interested in the development of the body, as an educational instrument. In India, "Applied Gymnastics" is yet to take its rightful place in school and college programme of physical education. We have a long way to go in this aspect of gymnastics and books such as these are specially welcome. We wish that this part could have been more elaborately dealt with.

It is a useful book and it must find a place in every institution interested in the promotion of gymnastics as an educational tool.

—J. P. Thomas.

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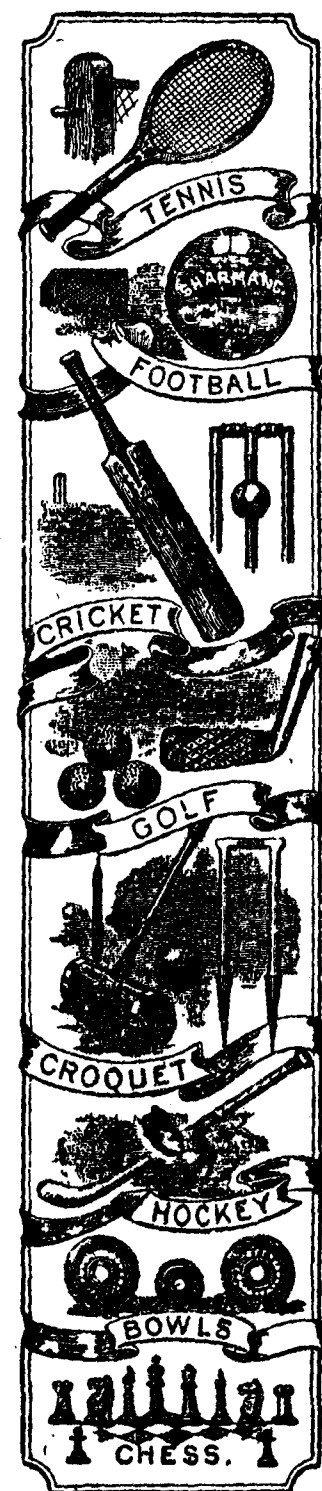
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