MINISTRY OF EDUCATION

Report by H.M. Inspectors on H.M.S. "GANGES" IPSWICH

Inspected on 23rd, 24th, 25th, 26th and 27th June, 1952

NOTES

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MINISTRY OF EDUCATION, CURZON STREET, LONDON, W.1

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INTRODUCTION

H.M.S. " Ganges " is a Royal Naval Training Establishment for boys who want to train for service as seamen, visual signalmen or telegraphists. It was set up in 1899, when the fourth ship to bear the name " Ganges ", built in Bombay in 1821, was moved to Harwich and moored near Shotley, Suffolk. There she was one of several old ships which formed the training establishment. Previously, from 1866, she had been stationed at Falmouth as a training ship for boys.

The first buildings of the present shore establishment at Shotley were erected in 1902, when sick quarters and recreation facilities were provided. By the end of 1908 the buildings were sufficiently advanced for H.M.S. " Ganges " to be paid off afloat and re-commissioned ashore. Some old vessels were used as additional accommodation for boys and for instruction in gunnery and seamanship. The fourth " Ganges " left Harwich in 1906, and, re-named " Tenedos III ", she became part of the Boy Artificers' Training Establishment at Chatham. When the shore establishment was opened, boys under training in the " Boscawen " (Portland), " St. Vincent " (Portsmouth), and " Caledonia " (Queensferry) were transferred here and those ships were paid off. With various additions to the premises, the establishment has continued since then to train boys.

Boys are recruited at intervals of five weeks, i.e. three times a term, between the ages of 15 and 16 years (16 years 6 months in the case of secondary grammar school boys) from all over Great Britain and Ireland. H.M.S. " St. Vincent " shares the seamen boy entry with H.M.S. " Ganges ", but does not take any of the communications boy entry. Most of the boys in " Ganges " are drawn from the large cities in the Midlands and northern parts of Britain. As far as could be ascertained at the inspection about half the boys come straight from school, the great majority being from secondary modern schools, and half after being in employment ashore. When a boy joins, after passing a recruiting test which includes English, arithmetic and general intelligence, he is given a free issue of uniform and other clothing. He is responsible thenceforth for maintaining his own kit, and for this purpose he receives a clothing upkeep allowance which varies according to current prices. Initially his daily rate of pay as a boy second class is 2s. 6d. This is credited to his ledger account and the amount of money which he draws is supervised.

At the time of the inspection there were 1,754 boys under instruction. The numbers during September 1949, 1950 and 1951 were 1,858, 1,465 and 1,627 respectively.

When boy-seamen leave, they go either to the training squadron or to the training flotilla as boy-seamen first class if they are under 17½ years. If over 17½ they are rated as ordinary seamen. Communications boys go to the fleet direct as boy signalmen first class if under 17½ and as ordinary telegraphists or signalmen if over 17½.

PREMISES AND EQUIPMENT

The establishment now covers an area of nearly 102 acres. It is bounded on two sides by the Rivers Orwell and Stour. The premises include dormitories (known as messes), a school, seamanship and signal blocks, gymnasia, chapels, a swimming bath, an information room and library, the Nelson Hall and Museum, a sick bay, a Navy, Army and Air Force Institutes canteen, and a large central dining room. There are facilities for gunnery and parade training, for boatwork, and for games and indoor recreation.

The establishment is admirably sited and the amenity value of the pleasant setting is great. The premises and grounds are very well kept. Much of the present premises and facilities, however, requires modernising when circumstances permit. More immediate consideration might be given to the following matters.

(1) The stretches of roadway between the main gates and the school and annexe (which are much used by boys moving between classes), need resurfacing.

(2) Specialist rooms, suitably equipped, are required for science, geography and navigation.

(3) The handicraft rooms are small and generally unsatisfactory. Better rooms, preferably in the main building, are required.

(4) The artificial lighting in the rooms used for hobbies is poor and the storage accommodation available in these rooms is very limited.

(5) The interior of the Nelson Hall does not appear to be damp proof. This will in time affect the photographs displayed there.

(6) The arrangements in the " two-decker " messes for escape in the case of fire might be carefully re-examined.

(7) In the messes it should be made clear to the boys what use is to be made of the drying rooms. Some uncertainty appears to exist at the moment. Some of the asbestos squares on the ironing boards require renewing, and notices are required to make it clear that plugs should not be left in the sockets when not in use.

(8) In the buildings known as the annexe the washing arrangements and galley require modernising. Some redecoration is necessary.

(9) The showers and washing arrangements in the main building are somewhat antiquated.

(10) It is probable that the drainage in the galley of the central dining room could be improved.

STAFF

A Captain is in charge of this establishment. General responsibility for all the training rests with him and it was surprising, but most commendable, to find how detailed was his knowledge of the individual boys despite the great size of the establishment. It was quite clear that his interest extended to every aspect of the training. Ably assisting him with the general running of the establishment are a number of officers, whose contact with the actual instruction and training is not so apparent during an inspection but whose influence none the less was discernable throughout the establishment.

An Instructor-Captain and Instructor-Commander are responsible for the scholastic studies. Both officers have given a great deal of thought to the problems of running a school of this nature and both spend much time in the classrooms helping the younger members of their staff. Their relations both with the boys and with the other officers are good. Helping them there are five Instructor-Lieutenant Commanders, thirty Instructor-Lieutenants, and nine Instructor-Sub-Lieutenants. They are trained teachers and twenty of them are graduates, four in arts and sixteen in science. Some of these officers appear to be primarily engaged in administrative duties; care is necessary to ensure that active contact with the classroom is maintained by all the officers. The staff are keen and hardworking and some are teaching thoughtfully and wisely. Unfortunately, however, the period of service in the establishment averages only about two years; it is suggested that this is far too short to allow an officer to make a real impression or to develop to any extent his own individual techniques. As a result, some of those who might develop lively methods teach on stereotyped lines, adhering narrowly to very detailed syllabuses and making practically no use of mechanical aids. Quite often this means that the staff are working hard but that the boys are not. Far too much work is copied straight out of text-books or sets of typescript notes on to the blackboards and re-copied by the boys; more original written work of all kinds and more opportunities for practical work by the boys are required. The teaching at present is not on specialised lines; some subjects are being taught conscien-

iously but dully by officers who are not very interested in them. An increased use of specialists would also make it possible for one officer to exercise general control of one subject as well as teaching it. There is no doubt that potentially the staff are capable of presenting an intellectual challenge to the boys if they are given the opportunity. Their interest in their work is apparent and they give freely of their time outside the classrooms by helping with games, clubs and social activities.

The staff for the technical subjects consists of 101 instructors altogether. Full details are given in Appendix II. Generally the technical instruction is enthusiastically given but occasionally it is erratic in methods of presentation. Within the limits of their training the instructors work hard, loyally and keenly. For the boys to obtain the full benefit from the course in seamanship, and of the work in the gymnasium, swimming pool and playing fields, additional instructors are required. There should be very careful selection of all instructors as instructing boys is not an easy task. A course in teaching technique planned to suit the conditions of this establishment would be helpful to many. Whatever is done some form of training in the handling of boys should be given to supplement the normal service training, and, also in the case of those engaged in physical training, a knowledge of the educational aspects of this work is required. Some instructors, who show particular aptitude for instructing boys, might appreciate the offer to spend a longer period than is now normal in establishments of this kind.

INSTRUCTIONAL ARRANGEMENTS

The training year consists of three terms, two of fourteen and one of fifteen weeks. There are periods of three weeks' leave between terms. It has already been mentioned that the boys are admitted at intervals of five weeks. Recently the intake has varied between 125 and 195 boys with an average intake of approximately 170. The quality of the new boys and the number appears to vary with the ordinary secondary school terms; it is understood that the best intakes often follow soon after the end of these terms.

Boys on arrival at H.M.S. " Ganges " are sent for five weeks to a special new entry block, called the annexe, which is separate from the main building. The training at this stage is very elementary, and consists largely of instruction in the maintenance and marking of kit, laundering, personal cleanliness and training in discipline. Very little school work of the normal kind is done and most of the sixteen periods of school subjects taught in this time are concerned with classification tests and the revision of arithmetic. For boys, who in the main have not lived away from home before, this period is very valuable. Care is required to see that the greatest benefit is obtained from it and that there is proper understanding of the outlook of boys of this age. The time given to this settlement is short.

At the end of their preliminary training, the boys are assessed, according to their ability, as advanced course standard (A.C.) or general course standard (G.C.) and upon this assessment depends the type of instruction which they will receive in the main establishment. H.M. Inspectors were of the opinion that too much emphasis was being laid on arithmetic at this stage and that the test should be more objective than it is, using English and general intelligence, as well as arithmetic, as the criteria. This view was based on the fact that the boys came from a wide range of schools in different parts of Great Britain and Ireland. Furthermore, many have been away from school for some time before joining the Royal Navy. Tests, with most of the emphasis on arithmetic, might prove misleading later on.

Before leaving the new entry block, boys are allowed to state whether they would prefer to train for service as seamen, as visual signalmen or as telegraphists, and, as far as possible, they join the course of their choice. Roughly twice as many boys train for the seamen branch as for the communications branch. The seamen boys then take a course lasting thirty-five weeks during

which half the instructional time is spent on normal school subjects, either advanced or at general level, and the other half at technical subjects. Their technical instruction is sub-divided into gunnery and seamanship. Boys for communications classes are selected from volunteers and about a quarter are classified as A.C. From an entry of normal size one visual signalling and two wireless telegraphy classes are obtained. These classes have full-time technical instruction for the first five weeks followed by thirty-six weeks' half-time school and half-time technical instruction. This is followed by nine weeks' full-time technical instruction. All boys do physical training.

The boys are divided into two watches, starboard (S) and port (P) approximately equal in size. When the starboard watch is in school, the port watch is at technical instruction and vice versa. Full details of this organisation, showing also the time devoted to the various subjects, are given in Appendix III. A normal entry produces two A.C. and four G.C. school classes of seamen boys and one A.C. and two G.C. classes of communications boys, who are regrouped for this purpose. The average number of boys in a class is 21.

Each boy does three or four weeks of " work-ship " during his stay but this time is usually organised in such a way that the continuity of the course is not unduly interrupted. Boys are taken out in classes, and on returning to school or technical instruction they continue where they left off. If " work-ship " and leave periods come close together, the continuity of the instruction is, of course, broken rather severely.

In an establishment of this size, the organisation is necessarily complicated but the main features as outlined above seem to be simple and effective. The content of the instruction and choice of the subjects taught also seem in general to be suitable, bearing in mind the wide aims of the training. The prospectus defines these aims as follows:—

First, instruction in mathematics, mechanics, electricity and navigation provides the boys with the background of elementary scientific knowledge which is indispensable in the modern navy. Second, instruction in English, history, geography, civics and religious instruction provides the background of general education required by a British citizen. The aim of the seamanship course is to give a boy a sound basic training which will prepare him to take his place as a junior rating in a sea-going ship. Gunnery and parade training are designed to teach discipline and self confidence. Visual signal boys are expected to cover the basic principles of fleetwork and general visual signalling organisation, whilst wireless telegraphy boys cover the basic principles of wireless signalling procedure and receive enough instruction in radio theory to enable them to operate their equipment intelligently. The physical training is intended to develop the boys' bodies, keep them mentally alert, and give them confidence in their own ability.

These aims are excellent and it is in the light of their guidance that the following observations are made:—

(1) The amount of work to be done by the boys in the time is considerable; in the case of the less able boys it is sometimes too much. Consequently the impact of the new work and the new approach is, on occasion, too severe. This is particularly so when additional periods of instruction or duties are added to the normal routine. The physical demands on some of the boys may be too great in relation to their development.

(2) There is a tendency for the instruction to be over-organised. This is partly due to the desire to keep parallel classes in step; as often the same officers and instructors remain with the same classes of boys throughout their training, it does not always seem to be necessary to give too much direction. It might well be worth examining the total number of directives to see how many are really essential.

(3) History, geography and citizenship do not usually figure prominently in the course until towards the end. This is regrettable because the effort to

get the boys steeped in the history and traditions of the Royal Navy and to build up strong loyalties from the beginning ought to be going on progressively throughout the whole course.

(4) In seamanship there has been an attempt to cut down explanations of and reference to equipment and gear that the boys have not seen. Any further efforts such as these, which make the work more practical in nature, ought to be encouraged.

(5) Care should be taken to see there is effective co-ordination in the teaching of related subjects of the curriculum.

(6) Text books for the use of boys in their preparation periods would be useful.

SUBJECTS OF INSTRUCTION

School Subjects

Religious Instruction

There are five chaplains rendering service in the establishment—three for boys of the Church of England faith, one for Roman Catholics, and one for those of the Church of Scotland and other Free Churches. Each boy is seen by his chaplain privately during his time in the new entry division and again after he has joined the main part of the establishment, as a normal matter of welfare, as well as on occasions when there is reason to think that he may need help. There is close liaison between divisional officers and the chaplains.

As regards religious instruction, there are fourteen half-hour periods set apart on the time table during a boy's course of training. Church of England and Roman Catholic classes are given their instruction in the school block, while the Church of Scotland chaplain takes his boys, and those of the other Free Churches, either in his office or in their church. Apart from these periods of instruction, confirmation classes are held regularly by the chaplains concerned. By invitation, Church of England and Church of Scotland classes were seen during the inspection. Contact by the chaplains with the boys in those classes was good. There was opportunity for discussion; useful questions were raised by some of the boys, and there was every sign of a friendly, helpful attitude and of valuable guidance.

English (including the Library)

During the five weeks at the new entry annexe the boys have very little "school" work, the time being largely devoted to preliminary training of a more practical nature. Of the sixteen hours available there for classroom instruction, it would appear that most of this time is spent in dealing with arithmetic, which is the dominating factor on which they are classified subsequently. There is in the annexe a supply of some three hundred story and other types of books, but at the time of the inspection this library was not in use.

The course of English instruction in the main establishment is based on a scheme of work drawn up some years ago; this gives careful guidance aimed at ensuring that the boys are able to understand the analysis of sentences, parts of speech, and punctuation, and leading up to more useful and interesting written work which includes exercises in comprehension and the writing of paraphrase and précis; there is some reference in the final stages to reading and to drama. Much of this scheme in its earliest stages is somewhat elementary and the work seen in a number of classes shows that there is too much rigidity in interpreting the suggestions, resulting in many boys writing some very dull notes on matters such as punctuation and parts of speech, work which to many of them is extremely uninteresting and of little value. If it is necessary in some cases to dwell on such work, it might be dealt with individually. For the more

able this approach is likely to have a depressing effect. The standard of attainment in sentence construction shown in the examination papers written by the new entry boys about to move up to their main courses at the time of the inspection was quite high; whilst this may have been better than usual, the written work of classes doing the main course also indicated that the majority know how to express themselves in writing on simple matters tolerably well. Some useful work in comprehension and the writing of précis was noted in some classes, and some effort was being made towards a more stimulating approach by the reading of useful and interesting literature, followed by discussion; for this work, at present, books available in the school rooms are extremely limited. There is every reason for encouraging the boys during their English periods to know more of our grand heritage at sea, whether it be concerning the sailors of the past or present, or of the sea and ships in general.

There are three libraries which, coupled with rooms set apart for " Information ", afford the ratings (both those of the ship's staff and the boys under training) a sound means of reading for interest and obtaining information on current events. The library for the boys undergoing the main course consists of 3,880 books, of which 2,380 are works of fiction and 1,500 works of non-fiction (including books of reference). There are also in the information room, newspapers and periodicals and visual aids. The organisation of the library has been placed in the charge of an Instructor Lieutenant, who is well qualified to do this work; he is dealing with it excellently. He is assisted by other members of the instructional branch and there is sound promise in what is going on. In the summer term 1951, about a third of the boys joined the library. In the Christmas term about seven hundred and fifty took books out of the library and in the Easter term 1952, nearly six hundred and forty. Ship's funds are fortunately available for the purchase of new books, and during the year ending Easter 1952, almost five hundred books were added including one hundred and seventeen works of non-fiction. During the same time about two hundred and fifty books were withdrawn from circulation either for reasons of dilapidation or because the officer in charge of the library had found they were not of interest to the boys.

In reconsidering the course of English more use might be made of the library for the encouragement of the more able boys to find things out for themselves, either by allowing them to come over to the library during school hours, or by the use of suitable reference books in the classrooms in the school block. At present no individual work of this nature is apparently being attempted.

During the winter months the officer in charge of the library runs a drama group and some development of such work during school hours is being carried out by other instructor officers. This is valuable and from the " Ganges " magazine it is noted that the Drama Club has for two years running been successful in winning the Nore Command Drama Cup.

It is suggested that a member of the staff qualified in English subjects, and in teaching English, should be selected as the co-ordinating head of the English instruction, with responsibility to draw up (in consultation with other officers taking English classes) a revised scheme for the teaching of English, in correlation with subjects such as history, geography and current events; and to arrange for regular meetings of the team to discuss the results of their work. It would be an advantage if much of the elementary or over-academic work at present in the scheme could be eliminated, and a practical and really stimulating course drawn up, offering, on the one hand, work of a utilitarian type related to the needs of the boys' future lives and, on the other hand, giving opportunity for the stories of great events at sea, and of famous ships and great seamen, to play a fuller part in enriching the minds of the boys, by dealing with these as subject matter in the course of their English instruction. Questions put to a number of boys showed that they were almost ignorant of the lives of the great seamen after whom their divisions were named.

History, Geography and Citizenship

9 History, geography and citizenship are included in the curriculum for all classes. From the time table it would appear that some six periods each fortnight for all boys are allotted to these subjects. In actual fact, however, much less time than this is available because of the concentration by the teaching staff on certain other subjects of the curriculum. Proficiency in these latter subjects is tested by examination at the end of the course; the boys' knowledge of history, geography and citizenship is not so tested. During the inspection it was noted that in some classes only two or three periods a fortnight were devoted to the instruction in history and geography. In other classes this instruction is kept until after the examination work has been completed, and then a short course on the humanities is hurried through in the brief time that remains. This state of affairs is unsatisfactory. It may be held that for these boys these subjects have in themselves a special value, cultural and vocational, and that some knowledge of them is basic to an understanding of the proud traditions and far-reaching functions of the Royal Navy. If this is so, then it is suggested that steps should be taken immediately to prevent these studies from being squeezed out of the curriculum. It might help if a general paper on the history and geography of the contemporary world were set in the end-of-the-course examinations. For such a paper there should, however, not be a prescribed syllabus; a paper set on general lines would prevent the teaching from becoming stereotyped, while ensuring that all boys received adequate instruction throughout their school course in these subjects.

So far as history, geography and citizenship are, in fact, included in the curriculum, it can be said that a fair beginning has been made. There is more or less regular reference to the news of the day, and the boys are from time to time given set lectures on modern forms of political organisation, national and international. The scheme of work has been carefully and thoroughly prepared; it attempts " to correlate, if possible to integrate, the teaching of history, geography and civics by using the world as a background, Great Britain as the central theme. In geography it pays especial attention to the geography of these islands, and in history it attempts to cover outstanding phases in the national story from earliest times to today. Its starting point is a consideration of the earth as a planet; its end is the study of the rights and duties of citizenship."

This ambitious scheme is well balanced and contains many interesting and valuable features. The time available on the time table is, however, too brief for it to be adequately covered, particularly by non-specialist instructor-officers. There is, in fact, very little correlation, far less integration, between the different parts of the course, and there is almost no correlation with cognate subjects where it might be expected on *a priori* grounds, e.g. between geography and navigation. The course too is ungraded; there is little differentiation of content or of teaching methods to suit the needs of the less able classes. Insufficient attention is paid to such knowledge in these subjects as the boys possess at the beginning of the course. For many years in their previous schools most of them have had lessons on the geography of the British Isles and the main periods in British history. Such knowledge as has been retained will not perhaps, in general, be well established, but interest in it will almost certainly be stale. In this establishment a new approach is called for related to the new life which these boys at the dawn of manhood are taking up. The sea is the centre of this new life. It is accordingly suggested that when possible the scheme of work should be re-cast, and linked far more closely with the work carried on in other subjects, especially English, navigation and science. In history, sea studies of various kinds might well form the kernel of the course. The boys, for example, should learn something of the rise of British naval power and its influence on the history of the modern world; they should know something of the leading personalities who have in times past sailed in merchantmen or men-o-war, something of those inventions which have affected mobility, strategy, the course of commerce and the fortunes of battle. Above all, they

need to know something of those intrepid voyagers whose pioneer work altered man's concepts of the external world. In geography, similarly, the course might be revised so that there would be less concentration on the land areas and more on the margins of the lands, and on the nexus of world routes which link up the land masses by sea and air; there might be study of ports and their hinterlands, and of the nature and direction of maritime trade. Reality would be imparted to the work if the boys could make some individual studies (with large-scale maps and other visual aids) of the physical geography of different types of coast, and the human geography of different types of coastal settlement. There should be constant reference to map and chart and (especially where the work overlaps the teaching of navigation) the globe.

The present scheme of work makes no reference to the geography of the locality in which the school is set. This should be remedied in a revised scheme and full advantage taken of this wonderful peninsular setting, which offers so many opportunities for practical studies of many kinds.

There are on the staff one or two officers with specialist qualifications in history, though there would seem to be no officers specially qualified in geography. No officer is specifically in charge of the teaching in these subjects; if it were possible for two or three officers to become respectively leaders of teaching-teams, the teaching would doubtless gain immensely in effectiveness and value. At present much of it (when given) is uncoordinated, and keeps fairly rigidly to the schemes of work provided. One or two instructor-officers are attempting to develop the subjects on brighter lines, but in general the teaching heard during the inspection was thorough but unenterprising, lacking in sparkle and liveliness. There was little variation of tempo in the teaching, and the instructors made far too few demands on their pupils. The basis of instruction was the lecture rather than the lesson, and too little use was made of visual aids, even of the blackboard. Such concentration on oral teaching, especially in evening lectures at the end of a long and tiring day, tends to be a very wasteful method of instruction, fatiguing alike to the teachers and taught. It should prove possible, at least occasionally, to vary the teaching techniques, to make more effective use of aural and visual aids, and to do some practical work out-of-doors, or individual work in the library. In any case, the pupils should certainly be encouraged to participate much more freely in the work than at present, and very much more original written work and cartography demanded from them. The exercise books seen during the inspection contained very little except transcribed notes; some boys had no exercise books at all.

No rooms are set apart and specially equipped for the teaching in these subjects. Specialist rooms, complete with facilities for using visual aids, would be very useful. Provision should be made in such specialist rooms for a small collection of suitable reference books, for a supply of atlases, wall maps, large-scale maps, teaching models and globes. It might be economical to fit one such room for geography and navigation, and another for history, current affairs and English, and in this way a closer correlation between the different subjects of the curriculum might be stimulated.

At the present time there is an almost complete lack of large-scale maps and teaching models, too few wall maps, atlases and large and small globes. There is a number of excellent travel books and a few good reference books in the library, but these are not called into general use in the teaching. The supply of suitable reference material needs greatly to be augmented; it is even more necessary that that which is available should be effectively used.

In general, therefore, so far as history, geography and civics are concerned, it may be said that the place of these subjects in the curriculum is yet to be determined. The subjects tend to be taught by non-specialist teachers working largely in isolation on rather set lines. There are points of promise in the teaching but, in the main, it is rather pedestrian and it ignores completely the stimulus of the school's geographical setting. These limitations are not inherent

in the subjects themselves; they would readily be removed if the vital contributions that these studies could make to an establishment of this kind were fully realised.

Mathematics and Mechanics

There are two separate syllabuses in operation, one for the G.C. boys and the other for the A.C. boys. That for the G.C. course envisages a practical approach to the subject and contains simple arithmetic, algebra, geometry and mechanics. The less able boys are expected to omit the more difficult sections dealing with logarithms, resolution of forces, and velocities, centres of gravity and stability. It is not easy to understand why logarithms are omitted because experience shows that most boys enjoy using tables of logarithms even though they do not completely understand the underlying theory. There is some attempt to indicate that full use should be made of the boys' interests in interpreting the syllabuses. The A.C. boys have a more ambitious scheme of work altogether. It includes some elementary trigonometry and more searching work in kinematics and statics. The syllabuses have been carefully prepared to meet the requirements of the boys. They are, however, supplemented by very detailed indications on how to cover them with the result that there is sometimes not enough time to do a particular topic properly.

Each fortnight the A.C. boys have seven periods of mathematics and two periods of mechanics, whilst the G.C. boys have eight periods of mathematics and mechanics. Bearing in mind the general balance of the curriculum, this time allotment is satisfactory but the amount of work to be done is very great.

A large number of the instructor-officers teach mathematics and mechanics and usually they teach magnetism and electricity as well. Some teach all the school subjects. Each officer has a class or classes throughout its progress in the school so that he has an opportunity to get to know the boys well. Several are very promising teachers and practically all of them are quite sound practitioners but very few attempt to do anything that is not laid down in the directions. The result is that much of the class work is without sparkle and the emphasis of the teaching is on covering the set work for a particular lesson, irrespective of a boy's difficulties. This is a great pity because, where an attempt is made to break away from the stereotyped approach, the boys are responsive. It also means that there is little attempt to make use of simple demonstrations and illustrations to make the subject really alive. Another result is that there is a great deal of guided work, the instructor leading on the blackboard and the boys following in their notebooks. This does keep the boys of a class at the correct stage of the course but it does not give the able boy a chance to push ahead or the poor boy an opportunity to test himself. Initiative is discouraged.

In mechanics an attempt is made to give the boys some understanding of its practical significance. To this end a mechanics' laboratory has been installed in one of the classrooms. It is equipped to illustrate some of the simple principles of mechanics and their application to the normal deck gear of a ship. Although most of the work is of an easy character, one officer has specialised in the use of the laboratory and the other instructors send their classes to him for demonstrations. The arrangement is designed to allow really concentrated use of the time available and there is no doubt that the officer in charge has devised some very useful demonstrations. However, it would probably be much better if the class instructor did his own demonstrating and, when the laboratory was not available, used such simple improvised teaching equipment as is normally found in any classroom to show the mechanical significance of the principles.

The boys' notebooks, which were examined, showed a wide variation of neatness and accuracy not altogether correlated with the mental ability of the boys. They also revealed a great deal of unfinished work, possibly due to the fact that a set time only was allowed for each topic and what was unfinished in this time had to be left. Even so the total volume of written work was not enough for the time spent on the subject.

The boys were responsive to good questioning and many were determined to reach a reasonable standard in the subject. The general results would probably be much better than they are, if the instructors realised that understanding of part of the work is often better than a hazy and uncertain knowledge of the whole of it. After all, mathematics is a subject where understanding and accuracy are essential and constant practice is almost always necessary.

Navigation

The purpose of the work is to make the boys familiar with the terms and basic ideas which they may be called upon to use in such circumstances as assisting in coastal navigation or in the application of radar observations. The syllabus is interesting but, for boys whose groundwork in mathematics may not be very thorough, and with a time allowance of little over three hours per fortnight, it is rather extensive. For both advanced and general courses some simplification might be advisable. Some of the work heard in lessons and seen in boys' notebooks, on such topics as time, compass deviation and Mercator's projection seemed beyond the grasp of some boys. The omission of compass errors from the general course is a wise move, which allows a boy to grapple with fundamentals without experiencing the discouragement of wrong answers caused by something outside those fundamentals.

Some of the instructor-officers are keen on the subject and, by private reading, have gained a background of knowledge in it. The subject is one which can be taught well by one suitably qualified in mathematics or geography, but not all the officers engaged in the work are so qualified. Some of the teaching is mechanical and unimaginative. There is no up-to-date navigational library, though a few books on the subject are to be found in the school library. The book of prepared notes, some of which are entered in the boys' books, is the only means of ensuring any uniformity in the subject's treatment. Suggestions made during the inspection were that the work might be concentrated into fewer hands, that one experienced teacher might exercise general supervision over the subject, and that instructor-officers might be encouraged to gain practical experience of this work and a wider book-knowledge.

For chartwork the supply of equipment is generally adequate, though some desks are rather narrow for the charts in use. Very little equipment is in evidence for the teaching of the geometry of the sphere and a black-surfaced globe might well be provided for each room where navigation is taught. In each such room one might also hope to see displayed the chart of time zones, the world map of magnetic variation, the table of chart symbols and abbreviations and pictures of instruments if the instruments themselves cannot be provided. A small book-corner might also be made available to pupils.

Much of the earlier work consists of note copying by the boys and memorising definitions. Actual work on charts, probably the most useful and certainly the most interesting part of the syllabus, is unfortunately postponed until a later stage. It is suggested that progressive exercises on the chart might be commenced very early. New terms and ideas could be introduced and explained as they arise in the exercises, and a thorough understanding of these terms and ideas could be ensured by using them in subsequent exercises. Finally, boys might be encouraged to write definitions and notes on methods of working in their own words. Lively oral lessons could be variants from a scheme of work based on active chartwork by the boys, a scheme which might encourage progressively neat and accurate drawing on the charts and in the note books.

A greater degree of correlation of the work in navigation with that in other subjects would be helpful. The mathematical skills and basic ideas in geography which the boys already possess, even if only to a limited extent, might be used more. Much of the work in science and some in seamanship can be associated with navigation. Finally the boys' natural interest in a

subject new to most of them and important to all, might be exploited more. The eager responses of many during the inspection convincingly illustrated this point.

Electricity and Magnetism

The aims of the work in these subjects appear to be to give boys a thorough grounding in basic ideas, to broaden their general knowledge, to give them some appreciation of the electrical equipment they are likely to encounter in a ship, and to prepare them for work of a more technical nature at a later stage. For the type of boy, and for the time allowance of about five hours a fortnight over a period of 35 weeks, the syllabus, though appropriate, is very full, and to cover it adequately implies lively teaching throughout. The poor responses of some classes during the inspection indicated that not all the work is being dealt with thoroughly; but any reduction in the scope of the work might well lie in the direction of simplified treatment of topics, rather than in their exclusion from the syllabus. The distinction between the syllabuses for advanced and general courses goes some way towards making allowance for the very varied attainments of the boys in these subjects at the time of their entry to the school.

The instructor-officers vary considerably in their qualifications and experience. Some are able to offer their classes little more than text-book extracts in the form of copied or dictated notes, while others give well prepared lessons in which the boys actively participate. Full use does not appear to be made of those officers who are science graduates and who have experience of teaching science in other types of school. No one instructor-officer is in general charge of the subject, and the only ways of co-ordinating the work of various instructor-officers are by means of the syllabus and the book of prepared notes.

One room only is fitted as a laboratory, and this is occasionally used as a classroom. Tightly packed desks restrict the floor-space, and it is not always easy for all boys to see a demonstration clearly. There are numerous pieces of apparatus suitable for demonstrations, and most of these are portable, though during the inspection only one demonstration, and that a simple one, was seen outside the laboratory. The room is fitted for practical work by the boys, particularly for work on Ohm's Law and its applications. One instructor-officer is responsible for all the practical work and demonstrations in the laboratory and, although he makes every effort to co-operate with his colleagues (some of whom attend with their classes), exigencies of time and space sometimes make it impossible for the laboratory work of a class to be immediately related to its other work. Moreover, this arrangement makes it difficult in a previous lesson to give boys a clear lead on their laboratory work, and thus valuable laboratory time is lost on explanations. A progressive programme of demonstrations and practical work is not easy to conduct in such conditions.

Much more might be attempted in the systematic recording of laboratory work, and boys might be encouraged to read around a topic if book corners were provided in the laboratory and some other rooms. At present there appears to be little library provision even for the staff.

Despite the criticism implied above, much good work is being done. The instructor-officers are in good contact with the boys, who show awareness of the subject's importance and appear willing to attempt more than is normally demanded of them in science lessons, where often they remain completely passive. The generally good qualifications of the staff, and the genuine keenness of most of the boys suggest that standards of achievement might be raised considerably if certain matters of organisation, equipment and teaching method, discussed during the inspection, received attention. These included:—

(a) The appointment of a senior instructor-officer to be in general charge of the science teaching:

(b) the fuller use of those officers, well qualified by academic training or by experience, to teach science:

(c) the fitting of several rooms as demonstration rooms, with an increase in the amount of apparatus for demonstrations:

(d) giving responsibility to one instructor-officer for all the work with each class, including practical work:

and, (e) offering the boys more opportunities to participate actively in the work —by observing, recording and using reference and text books, by discussions in class, by writing original rather than copied notes, by attempting a greater number of calculations and by thinking critically of the subject's importance and of its relation to other subjects.

Handicrafts

Each class of boys passing through has twelve periods of instruction in woodwork and metalwork, and the opportunity for optional work on four evenings a week. The huts in which these occupations are carried out are smaller than desirable.

In metalwork some useful copper articles such as ash-trays, vases, money boxes, cigarette boxes and paper knives are being made. There is no really satisfactory means of heating metal, but a small blower is being used effectively for soldering.

In woodwork the course starts with a set piece to ensure the boys know certain joints. Subsequently, each boy chooses what he wants to make. These include fruit holders, book rests and some model work.

These pursuits are useful and a number of boys, particularly during the winter months, make use of the opportunities for voluntary work. Some well made articles were seen. It is unfortunate that, on occasions, boys who have made things well have failed to take them away when they are finally drafted from the establishment.

Technical Subjects

N.B. Gunnery was not inspected.

Seamanship

The syllabus is clearly laid down and should be of the greatest value to the instructors concerned. It has been revised recently and considerably shortened by the omission of a large amount of theory which was previously included. Still more use might be made of the practical content in every section of this syllabus, and reference to and explanation of what the boy has never seen should be cut to the minimum. Real, full-sized equipment should be introduced wherever possible and effective use made of existing visual aids. Practical work with models of boats or actual ships enables the boy to do the particular job in question rather than listen or watch how it should be done. This is particularly important as no opportunity is given to the boy to compile a note-book and it is not intended that he should do so. The value of the instruction will largely depend, therefore, on its interest value and its practical application under working conditions. Examples of this were discussed at the time of the inspection, especially where it related to fire fighting and damage control. The full use of the destroyer H.M.S. "Stevenstone", which has recently been arranged, should be of great value in bringing the subject to life.

All the equipment, both old and new, is maintained in excellent condition within the instructional block. The condition of the boats is most creditable, as also is the running and general up-keep of the pier. The repair staff ought to be large enough to effect repairs and replacements as they are needed. Stretchers in all boats need to be properly secured and, if the modern fitting is not available, some form of foot strap should be provided. The provision of cutters for class instruction in pulling is invaluable, but it is suggested that more whalers are needed to ensure adequate training in the type of boat which the boys are

most likely to meet at sea. With additional whalers it would perhaps be possible, approximately in the sixth or eighth week of the course, for one instructor to handle one cutter and up to two attendant whalers at a time; this would help with the training of boy coxswains. It was noticed that the officer in charge at the pier had no particular power boat at his immediate disposal to send out in an emergency, nor was one available to give a certain amount of instruction should it be thought desirable. At the time of the inspection, considerable trouble was being experienced in the electrical control of the instructional steering trainer.

The instructors were technically sound, enthusiastic and thoroughly reliable in every way. Nevertheless, they varied considerably and were sometimes erratic in their methods of presentation of the subject matter. The number of instructors available to carry out the duties including instruction, divisional responsibilities, and the ordinary establishment duties, is insufficient. This is liable to cause anxiety and a sense of urgency which detracts from the value of their work. Great care is necessary in their selection to avoid the wrong type of appointment—those unable to deal with the upbringing of boys at such an important establishment. In present circumstances, arrangements might be made to retain on the staff for longer periods than at present, those instructors who are recommended and are both willing and keen to remain. As soon as drafting conditions permit, it would be most advantageous to arrange for every instructor to undergo an instructional technique course planned to local conditions before being made responsible for a class. It would be helpful if a senior instructor or officer were available to assist, advise and assess the value of instruction throughout the courses.

The system of examination needs constant review. Five to seven minutes oral examination and one written paper appears to be somewhat out of proportion to the length and importance of the course. The introduction of the simplest type of question paper at some selected stage might prove a valuable incentive as well as a guide to progress without causing inconvenience or overloading the staff. It was felt that the intensive cramming which invariably precedes the final examination under existing conditions would not be necessary if facts, presented by the instructors over a considerable time during the course, were fully absorbed by the boys.

The training officer carries both the duties of First Lieutenant and Seamanship Officer. This appears to be too heavy a burden and prevents sufficient attention being given to one or other of his responsibilities. The seamanship department needs an officer in charge of a rank higher than that of Commissioned Boatswain, so that the full technical ability of the latter can be made use of in co-ordinating the instructors' work and the handling of the equipment. The appointment of such an officer would allow a greater degree of liaison and encourage a closer link between classroom work and such seamanship topics as compass, tackles, fire fighting chemicals, etc., which could be more easily taught by the instructor branch.

Communications

The Royal Navy regards the communications boys of H.M.S. "Ganges" as the nucleus from which the higher ratings of the communications branch will be provided: in consequence, the training which the boys obtain is of vital importance to the service. It is therefore a pleasure to record that, despite some criticisms which appear later in this report, the training received appears soundly conceived, efficiently given and calculated to produce boys who, after experience, will be technically competent to uphold the high reputation of the branch.

After the five weeks' initiation course, common to all boys, and described elsewhere in this report, boys are selected for training either as seamen boys or as communications boys. The classification depends upon the boy's preference, and upon his ability. It is difficult to carry out the selection from the aptitude point of view, although an attempt is made to discover whether an aptitude for