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**O.A.U. ACTIVITIES AND INTER-AFRICAN CO-OPERATION IN
EDUCATION, SCIENCE, TECHNOLOGY AND CULTURE**

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GENERAL INTRODUCTION

In this report which concerns the activities of the OAU - and the expected co-operation of Member States - in Educational, Scientific, Technological, Health and Cultural matters, one finds it difficult to be able to report happily on events that should have been but were not. In saying this, one thinks mainly of the failure to obtain the necessary quorum to enable the Joint Session of the Educational and Cultural Commission, the Scientific Technical and Research Commission, and the Health, Sanitation and Nutrition Commission to be held as previously planned from 1st to 6th May, 1967, in Addis Ababa. Up till 27th April, 1967, when that Session was postponed, only twelve countries had replied (i.e. Congo Brazzaville, Mauritania, Mali, Togo, Tanzania, Lesotho, Ivory Coast, Sudan, Libya, Dahomey, Gambia and United Arab Republic). Of these, the first nine accepted to attend, two were negative (Gambia and Dahomey) and U.A.R. requested for a postponement. Soon After the General Secretariat had transmitted messages to Member States concerning the postponement of the meetings of the Specialized Commissions, several replies were received indicating acceptance to participate in the meetings of the Joint Session and eventually a few of the delegations turned up at the General Secretariat without knowing that the meetings had been postponed.

After all the encouraging speeches that had been made previously in the Sessions of the Council of Ministers and elsewhere, concerning the necessity and indeed the imperative need for the Specialized Commissions of the OAU to meet and discuss matters designed to enhance African co-operation in the relevant fields, failure to reach a quorum came as a shock. If this is a true reflection of the apparent state of affairs in the approach of Member States to the Specialized Commissions, then the position would be serious enough to demand a thorough review. This failure also immediately raised several questions vis-a-vis the role of the OAU in non-political matters. One of these fundamental questions was whether all Member States of the OAU were really keen to see the whole of the OAU Charter being translated into fruitful actions for the benefit of citizens of

Member States. If it was not for the fact that one frequently comes against evidences of the glaring need to co-ordinate and harmonize actions in fields such as Education, Science, Technology, Nutrition, Health and Culture within Independent African States, if it was not for the fact that many non-OAU organizations coming from outside Africa successfully hold meetings on Africa ^{attended by Africans} ~~to discuss~~ matters in these particular fields, then one would find it easy to explain the failure to hold the Joint Session of the three Commissions mentioned above. Then it would be a simple case of saying that the need is either not there or if it is then it has not yet been felt. But as is known, there is still a lot of talk in Africa and by responsible leaders calling for action to co-ordinate and harmonize activities in non-political fields, with demands that multi-national programmes or projects in these fields should be undertaken to exploit beneficially the natural resources and develop economic and social services of Independent African States. One is therefore moved to assert quite openly that there is a need for the OAU to be involved in these non-political fields as is provided for in the Charter. That involvement cannot be and indeed is merely not up to the Council of Ministers or to the Assembly of Heads of State and Government. These two supreme organs of the OAU have, among others, the role of deciding on given issues which other OAU organs have already defined fully, provided the necessary background and indicated possible alternative lines of action in each case. If the Specialized Commissions cannot meet, then one does not see how this decision-making can be done quickly enough to allow for the co-operation and harmonization of activities of Member States and for the implementation of projects to be done in time. The Council of Ministers and the Assembly of Heads of State have too many other important matters to discuss and decide upon without being saddled with the technical considerations of projects or programmes. Unless the OAU Member States wish to surrender their rights to non-African organizations to discuss and reach decisions on matters that concern the accelerated development of these States in non-political matters; unless the OAU Member States wish to see their right to initiate action being removed from African hands to non-African hands, which could use it for motives other than of benefit

to the majority of African citizens, it would be wise to examine the position as it is at present and resolve once again to determine to allow the OAU Specialized Commissions to function effectively, efficiently and efficaciously, as anticipated and provided for in the Charter.

It is the duty of the General Secretariat to sound this warning to Member States and also to point out that there are already afoot on the continent of Africa disruptive forces which are interested in ensuring that the little unity that the OAU Member States were achieving in fields such as Education, Science, Technology, Health and Culture, is destroyed and that any future coming-together to reactivate and expand on it is not successful. For example, it is known to the General Secretariat that some non-African Organization is canvassing the support of Independent African States for the establishment of a permanent "Association for the Advancement of Agricultural Sciences in Africa". When it is realized that the OAU was established, among other things, to undertake exactly this type of task, one is left in no doubt as to the possible intentions of a move such as this one. It is needless to point out here that there is also the Economic Commission for Africa which is involved in matters such as these. There are also the Specialized Agencies of the United Nations and, in particular, the Food and Agriculture Organization which, among other things, concerns itself with matters such as these. One then is bound to ask the question that instead of making these existing organizations more co-ordinated, efficient and better placed to carry out these tasks, why should yet a new organization be formed? The formation of such an organization in the present circumstances does not seem to be for the love of efficiency or for the desire to maximize the benefits derived from agricultural production by Independent African States. What surprises one is that meetings of this kind very often obtain the support of many OAU Member States or of leading personalities within them, yet when the OAU call a legitimate meeting to discuss matters in the same fields, the response as of recent, proves to be very inadequate.

It would, however, be a serious mistake and indeed negative in approach, to base ones policy on merely combating manoeuvres by outside organizations to disorganize or eliminate the non-political activities of the OAU. Success and progress very often result from positive policies in the face of disruptive forces. In order to succeed and achieve results in the educational, Scientific, Technical, health and Cultural fields, the OAU has to pursue policies that assist Member States in identifying their needs and areas of inadequacies, and to draw up blue prints of projects and programmes which it would assist in executing, either nationally, regionally or continentally.

Bearing the above in mind, the holding of the Second Session of the Scientific Council of Africa, 8th to 12th April, 1967, was an act of reaffirmation by few for so many of the beneficial and uniting role of the Specialized Commissions on the Member States of the OAU. Even though only a few Scientists turned up, the General Secretariat is particularly satisfied by the results of the deliberations of that Session of the CSA, which have been circulated to Member States in document SCSEC/25. The attention of Member States is particularly drawn to the recommendations that were made by the CSA after considering the proposals made by the General Secretariat on the following items:-

- Recommendation III The setting up of Training and Research Institutions (or Centres of Excellence) in Africa, in Specialized Scientific skills.
- Recommendation VIII The acceptance of a Phyto-Sanitary Convention for Africa.
- Recommendation IX The acceptance of a Convention on the Conservation of Nature and Natural Resources in Africa.

- Recommendation XI Afforestation and Utilization of parts of the Sahara and semi-deserts for food production and for other economic purposes.
- Recommendation XII On Oceanography, marine biology, sea and inland fisheries.
- Recommendation XV The training of middle-grade personnel in scientific disciplines.
- Recommendation XVIII Priorities for scientific research and Development in Africa.

The General Secretariat is in complete agreement with those recommendations and hopes that the competent organs of the OAU will accept them - among others - so that the processes of implementing them may be started. Elsewhere below in this report, these recommendations are elaborated upon appropriately.

Incidentally, because the Specialized Commissions failed to meet as planned, all the working papers that were to be discussed at that Session have been re-presented to the Council of Ministers for consideration. They are documents ESCHC/2 - 29 inclusive.

Making a sombre survey over the scene in Africa in matters concerning Education, Science, Technology, Health and Culture, the picture has not improved ^{much} since African Heads of State decided to authorize the OAU to take part in these matters by including them in the Charter in 1963. One continues to read reports of inadequate educational services either for the school age children or for existing schools in most Member States. In the field of Health, it is only recently that the office of the African Region of WHO published statistics to indicate that the number of doctors and trained health staff in some of the African States compared to the population that they serve is far too inadequate to be effective, and that in any case progress since the last three years or so has been very small indeed.

Health reports from most Member States still indicate pockets of malnutrition. Turning to science and technology, it is widely known that there are few qualified scientists in most African States and the rate of increasing these meagre numbers is also very low. Persons with specialized skills such as engineering, geology, electronics, physicists, pharmacists - to name only a few - are either absent or very few indeed. If one surveys institutions of higher learning for training in these and other specialized technological fields, one would find that these are very few or even non-existent in Africa. Without such trained and highly skilled personnel, the full exploitation of Africa's natural resources, and the effective manning of economic and social services can only be done with the help of foreigners whose loyalty to Africa cannot be guaranteed. It is with the knowledge of these and other inadequacies in Africa that the recommendations of the USA should be considered, and the general proposals presented by the Secretariat, (some of which are mentioned below) decided upon. These are now taken up under individual headings.

EDUCATION

(a) General:

Education demands in most African States is still mainly of two types. Firstly, there is the obvious demand for the provision of adequate facilities for school age children to be educated from primary through secondary school to university education with appropriate units or branches for professional training. Secondly, there is the demand that in order to create communities that can cope with and support modern economic and especially industrial development, the general masses must receive certain directed or discriminating public education so as to be able to contribute readily and efficiently to that development.

Taking the straight academic education and present desire to provide educational services for all school age children at all levels of education, one comes against varying degrees of success

which have been achieved by the OAU Member States. In some States for instance, the problem is to provide adequate primary school facilities in rural areas. In most countries, the problems appear to be the improvement of the quality of education available at primary level and the urgent expansion of secondary school services. Also, and as is known, most countries have visible shortages of teachers and have had to import expatriate skills to fill up the gaps. Throughout all these problems, there is the major difficulty of finding adequate funds to pay for the services that are existing as well as for new ones desired.

The problem of improving the quality of primary education appears to be becoming serious. It would appear that it stems from two major sources. Firstly, the quality of teachers that teach in primary schools appears in some cases to be deteriorating. In some places, untrained teachers or school failures who are engaged as pupil teachers, are left to undertake the very difficult task (even to trained teachers) of teaching the uninitiated primary school children. Sometimes, even the output of trained teachers who teach in primary schools leaves much to be desired from the quality and content angles. For example, one cannot expect much from a teacher whose command of English is very inadequate to be able to teach well that subject to beginners, leave alone teaching any other subject in it. He would not, in such a case be able to express himself clearly and fully. Also quite often one come against inadequate professional discipline among some of the teachers and an apparent lack of thoroughness, inventiveness and feeling of pride in teaching among some of them. All these appear to contribute towards the low quality of education that is provided by some of the teachers at primary school level, as a result of which the enthusiasm the children should have in acquiring more knowledge and in perfecting the knowledge that they have received is not aroused, or at worst, is stifled. It is therefore no wonder that one finds children that are supposed to have gone through a given syllabus not to be even well informed about the whole subject-content. To these inadequacies in the teaching staff one should consider the inadequate supply of books, teachers-aids and other educational materials that help to

top-up and refine what the teachers can give in some of the schools. Here again one comes against the limited supplies of funds both to the schools and to the parents that pay for the education of the children.

It would appear that in order to improve the quality of education provided at primary school level in some places, and thereby raise the quality of primary school leavers, three things, among others, would need to be undertaken. Firstly, the training of teachers must be thorough and such that it can inspire professional pride and enthusiasm in the qualified teachers. Secondly, the staffing of primary schools must be such that only qualified teachers should be allowed to teach in them, and thirdly, there must be a thorough system of inspection to ensure that standards are maintained both professionally by the teachers and in the teaching of subjects. The need for teachers' aids and large quantities of expensive school equipment is generally low at primary school level; it is the professional qualifications of the teachers, the syllabi and the enthusiasm of both the teachers and pupils that matters at that level. Mentioning these aspects here does not in any way imply that action is not being taken on these as well as on the other relevant aspects aimed at raising the standard of education at primary school level. This is merely an attempt to try and discover what action and how much of it, should be taken in order to ensure that the quality of primary school leavers improves to the highest level obtainable.

Turning to the expansion of secondary school services, one must recognize that the availability of adequate funds is perhaps the major factor in this. With adequate funds, one can build secondary schools and equip them adequately for the tasks in hand. With adequate funds, one can also train secondary school teachers or pay for expatriates to fill the gaps. But after saying the above, one must mention that the lack of teachers has perhaps played a very significant role in limiting the expansion of secondary school services. This contention is borne out by the fact that in some countries, where self-help schemes have been encouraged, several

modest secondary schools have been opened with funds and labour supplied by local communities. Although this very commendable way of attempting to satisfy the visible thirst for knowledge has been made, yet, and often, there has not been a sufficient number of teachers to teach in these schools, and, as a result, most of them have either been closed down or have had to make do with insufficient teaching staff. Some of these are likely to turn out school-leavers with low secondary school education - thereby helping to lower the standard of secondary school education. This lack of teachers has often led to the damping of the enthusiasm of the local communities which in turn has reduced the support that they give to self-help schemes in education, or in other fields.

Through efforts by organizations like UNESCO, it is increasingly becoming possible to equip schools with cheap local made equipment. The OAU supports UNESCO's endeavours in these fields the success of which would mean that African States could equip their schools cheaply without having to spend scarce foreign currency on buying imported school equipment.

As regards existing places of higher learning, that is, colleges and universities, and apart from shortage of funds, some of these have been plagued by insufficient number of students enrolling for higher education. This state of affairs appears to have had its origin in two main sources, that is: (a) some of the institutions of higher learning have demanded too high and rigid entry qualifications, sometimes without taking into account the needs of the communities they serve, and (b) some of the communities served by some of the institutions have openly been unable to turn out the required number of students with the required qualifications. The problems arising from (a) above could possibly be solved by changes which would introduce flexible policies by such institutions of higher learning, which would cater for both the academic need to train the best brains available to the highest academic and professional standard possible, while at the same time serving national demands for lesser but highly trained and disciplined personnel.

As for (b) above the answer may lie in increasing secondary school vacancies or in offering some of the vacancies to other neighbouring States, who would pay the full cost of the educational services offered.

As for the demand for colleges, universities and other institutions for higher professional training, this is always present and certainly Member States would be serving the right course by establishing more of them.

(b) Future Programme:

Looking to the immediate future, the General Secretariat has already circulated document ESCHC/29 which contains proposals for the Joint Meeting of UNESCO, ECA and OAU in the fields of Education, scheduled to be held early in 1968. The attention of Member States is invited to those proposals, which are designed not only to increase the educational services in Africa at all levels but also to make do with the special arrangements which appear to be called for in the present circumstances in Africa where funds and trained teachers are scarce. It is only fair that, so long as the report on the Conference of African States on the Development of Education in Africa (Addis Ababa 15th - 26th May, 1961) and the report on the Conference on the Development of Higher Education in Africa (Tananarive 3rd - 12th September, 1962) are still considered valid and realistic in the targets that they set, African States should continue to review their achievements in the lines of recommendations made in those reports. It is also logical to propose that discussions should be held to find ways and means of overcoming the problems that have been encountered in attempting to implement those recommendations so that Member States may be enabled to achieve the targets set in the reports.

Naturally, after implementing such wide ranging recommendation as are contained in the reports, it would be preferable to have a period of consolidation and refinement of the gains achieved.

Between 1961/62 and now, several years have elapsed and the reports that are received from some places indicate that not only have the targets not been attained but also that the quality of whatever has been attained leaves much to be desired. It is, therefore, logical to suggest that during this period, Member States would be advised to consolidate the gains that they have made and to attempt to improve the quality of the education offered at their institutions at all levels. Incidentally, it is assumed here that while this process of consolidation and refinement of education offered is undertaken, the task of continuing to implement the two reports would not fall behind, otherwise the purpose of setting the educational targets would be lost. Depending on the views expressed by Member States at that conference, which is expected to be held early next year, those 1961 and 1962 reports may come up either for a review or a revision of the targets set.

After dealing with the general development of education at lower and higher levels as contained in the two reports mentioned above, the General Secretariat feels that the meagreness of funds generally obtaining in Africa and the shortage of trained teachers that is felt by most Member States, call for special arrangements in attempting to use whatever supplies of these that are available, hence the suggestion that investigation be made and discussions be held on possible joint utilization of expensive educational facilities such as laboratory equipment and research facilities. Also being aware that some Member States may be at any one time richer than other Member States, the General Secretariat considers that it would not be out of place to hold discussions on the possibilities of establishing revolving funds in education for the expansion of teacher training facilities and for the supply of expensive laboratory and school equipment.

There is also the apparent shortage of highly trained skilled professional personnel especially in the scientific disciplines which require to be eliminated and in this connection the General Secretariat has proposed in document T.SCHC/4 the setting up of Training and Research Institutions or Centres of Excellence. Initially, only a limited field had been covered, which is designed to ensure the

the maximum exploitation of the natural resources currently obtaining in Africa for the benefit of Africans. This subject is covered more fully below under science and technology.

During the joint meeting Member States will be invited to indicate what role they expect UNESCO to play in the continuing development of education and science in Africa.

Incidentally, the General Secretariat has also circulated documents ESCHC/26 on the Accelerated Teacher Training and ESCHC/27 on the Primary Education for Nomadic Populations. Presentation of these papers has been undertaken in order to help discover through an exchange of views, ways of removing the problems met by some Member States in these connections.

To sum up, therefore, as far as education is concerned, the demand for high quality, cheap and comprehensive education at all levels is evidently present in most, if not, all Member States of the OAU. Low quality education that appears to be obtaining in some places at primary school level needs to be tackled so as to raise it to the highest standard acceptable for continued academic pursuits or for useful integration into rapidly changing communities. The secondary education which supplies both the universities and the middle grade candidates for many jobs in economic, social and political services, require to be expanded as soon as possible if the accelerated economic and social development that Africans expect is to be achieved. As for the institutions of higher academic and professional learning, it is considered that while making available the facilities required in producing quantity - intensive skills for example, economists, administrators, agriculturalists, veterinarians, doctors, etc. - there is also the need to establish in Africa the facilities that are required to train specialist skills with low demand such as geologists, meteorologists, physicists and psychiatrists. In endeavouring to undertake these necessary but expensive services in the field of education, Member States may need not only to put in

individual efforts on a national level, but also regional and continental efforts so as to ensure that the financial and intellectual resources available in Africa for these tasks are used to the maximum advantage possible. Help from outside in carrying out the required projects, should be sought only when national, regional or continental resources have proved to be below the required levels or demands. Through the expected discussions - either within the OAU or in the proposed Joint UNESCO/ECA/OAU meeting on education, it is hoped to pick some projects, the execution of which would help to remove some of the obstacles that Member States encounter in the educational field.

HEALTH AND SANITATION

(a) General:

The general health services in most Member States are still far inadequate. Although health services in some of the urban areas, compared to rural areas, are reasonably good, it is true to say that in the rural areas in Africa, health services are very meagre and in some cases non-existent. The low levels of education and of standards of living which are usually found in the rural areas, combine with this lack of health services to give nature and her forces a dominant hold on the rural populations and in particular they become exposed to disease - and death. The WHO appears to be concentrating at present on the eradication of epidemic diseases such as smallpox, cholera and Yellow Fever as well as of other widespread diseases such as malaria. It is necessary for health experts from African States to sit down and exchange views on and experiences in health and sanitation matters, so as to enable strategic projects or programmes to be drawn up and be initiated so as to help ensure a healthy and longer life to each individual African. To start with it would appear that there is an urgent need to improve preventive medicine services in the rural areas, to expand the provision of protected water supplies in order to help in the elimination of water-borne diseases and to prevent the spread of infectious diseases. While thus concentrating on preventive medicine,

it is necessary to make some provision for curative medicine in rural areas so that those who may become ill can be treated.

There are other aspects of health which also need attention, but it is considered that the dearth of health services in rural areas where over 90% of Africa's populations live, demand priority treatment in Africa. The training of doctors and other health staff is dealt with elsewhere in this report under training.

(b) Future Programme:

From the foregoing, it would appear that in the immediate future efforts in health and sanitation would best be spent on increasing health services - both preventive and curative - in the rural areas. This may best be done by establishing health centres as suggested in document ESCHC/11 which has been circulated to Member States. The health centres would have satellite stations responsible to them and would be staffed by trained personnel both in elementary curative medicine and in preventive medicine - including health education. The health centres would in turn be linked to referral hospitals at the district, provincial and national levels, which would be staffed by doctors and other higher qualified staff, and which would provide modern hospitalization services.

It is also considered that efforts should be exerted in improving the health and sanitation services currently obtaining in urban areas. This would include strict application of food standards (for example, in meats and milk), the treatment of drinking water, the disposal of rubbish, the expansion of water-borne sanitation, the expansion of hospitals and of efficient systems of preventing the outbreaks ^{or spread} of epidemics. The attention of Member States is invited to these health and sanitation problems, and it is hoped that from the expected discussion on these problems, suitable programmes of a regional or continental nature may be formulated.

Incidentally in document MSCHC/21, the General Secretariat has proposed the establishment of stocks of vaccine and medicines for use in outbreaks of epidemic diseases. The purpose of such stocks would be to ensure that (a) they are handy in case of such an outbreak, (b) they are within a system that allows for mutual help between African States - those without adequate funds at a given moment would be enabled to buy on credit what is required to eliminate or control an epidemic and then pay later - and (c) they help in creating self-sufficient services for Africans by Africans.

NUTRITION

(a) General:

As already mentioned above, there are evidences in some communities in Africa of widespread malnutrition. This problem assumes serious proportions especially among the children. It is known that extensive malnutrition especially among the children can lead to retarded bodily and mental development and possibly to a stagnation in the population growth in some of these communities because of the high mortality rates. This is a state of affairs that requires to be tackled very urgently.

It is known that in Africa while there are a few pockets of over population, generally speaking, the land is under-populated. Also it is known that with few exceptions (such as parts of the sahara desert) most parts of Africa could grow some good crops. Therefore, whether agricultural production is based on the growth of food - which is considered to be a logical policy in the present shortage of adequate foods - or whether it is in the production of industrial agricultural crops from which to obtain income for buying foods and other needs, the available agricultural land in Africa can supply the required foods and more, to ensure balanced and adequate diets for the African population on the continent. What appears to be necessary now is to devise a continuous

stimulation of increased agricultural production of food and the initiation of systems whereby the movement of foodstuffs from areas of plenty to areas of scarcity could be effected efficiently.

The African continent not only has the arable lands from which it could produce adequate foods for balanced diet for its citizens, but it also has around it oceans and seas which are teeming with, among other things, all types of fishes. As is well known fishes are very rich in proteins - a type of food that is very useful and important to human bodies. Here again, it appears that there is a need for continuing stimulation to exploit the natural resources available in territorial waters including inland waters as well as in the open ocean waters around the continent of Africa. Incidentally, it is perhaps not out of place to mention here that according to the Report of the United Nations Conference on the Law of the Seas, territorial waters "may not extend beyond twelve miles from the baseline from which the breadth of the territorial sea is measured", (Article 66, 1958 Conference). Member States who have not promulgated legislations to extend territorial waters to this maximum width may wish to take appropriate action in this connection so that they may ensure that their citizens benefit from the fishes and other natural resources such as oil, and minerals that are to be found on the continental shelf and the immediate surrounding sea floors.

(b) Future Programme:

To sum up, in the field of Nutrition, it appears correct to state that in the land of and seas around Africa there are sufficient supplies of resources from which to get sufficient food for more than the present population. As for the fishes to be obtained from the oceans and inland waters, the General Secretariat has attempted to indicate in general terms in document ESCHC/23 how, through scientific husbandry and training of personnel, the harvest of fishes from these waters could be increased either for local consumption or for selling elsewhere. In that document, mention has also been

made of the necessary research required not only to ensure that the fishes continue to supply additional stocks, but also to contribute to the manufacturing of protein concentrates from the fishes. Above all, it is vital to ensure that where there is idle land it is immediately cultivated for providing food and industrial crops. Where there is scarcity of land, and in any case eventually, it is necessary to apply scientific plant and animal husbandry so as to raise productivity from the land.

As an additional inducement to production of food crops (i.e. production of food for eating and for export), the General Secretariat has proposed in document ESCHC/24 the establishment of regional stocks of food grains to help against food shortages and famines. Such stocks of food being shared between more than one State, would form the third line of defence against food shortages and malnutrition (it being assumed that each family and each State normally stores food against food deficiencies). The creation of such regional stocks of food would ensure that areas which can produce foods in excess of the demand for local and export purposes have an additional lucrative market for their crops which, while providing them with additional income, would also be a form of supplementary insurance for them against food shortages. In view of the frequent importation of foods by African States from outside Africa, the General Secretariat hopes that the establishment of regional stocks of food as outlined in that document would eliminate this shameful phenomenon and as such the proposal merits the serious attention of Member States. Through inter-African dependence, by establishing regional stocks of food grains, the OAU may remove this embarrassing phenomenon of obtaining food from outside Africa, when Africa can produce enough food for her citizens. ^{Also} as one of the ways of increasing food supplies, the General Secretariat has suggested in document ESCHC/22 that consideration be given to the Afforestation and utilization of parts of the sahara and semi-deserts for food production and for other economic purposes. It has been suggested in that document that the countries involved should get together and discuss common methods of winning arable land from the desert and semi-desert for food production and for other economic purposes.

This joint approach could be spread to other fields such as research in suitable crops and the utilization of underground water. The afforestation of desert and semi-desert land also offers opportunities to Member States concerned to use natural resources such as crops and minerals that may be available in these areas.

In all of these proposals the objective is self-sufficiency in foods as well as the provision of balanced diets to citizens of Member States. The General Secretariat hopes that this matter of producing adequate foods will receive the serious attention of Member States that it deserves, and that, among other things, the proposals that it has put forward will receive close consideration.

SCIENCE, TECHNOLOGY AND RESEARCH

(a) General:

The growth of scientific knowledge especially in developed countries has enabled man to supply his needs more cheaply and more abundantly than hitherto. The exploration of matter, of space and of existing systems has yielded new knowledge, the application of which has increased not only the information available to man in these fields but also the comforts that man can enjoy on this earth. Therefore, the OAU cannot afford to ignore the growth of scientific and technological knowledge in Africa and elsewhere. This growth has been in almost all cases the result of concentrated research - although of recent military needs have boosted the process. Research has proved to be the conveyor belt on which new ideas are continuously fed into all aspects of man's existence on this earth - including the solution of problems that arise from that existence. It is therefore vital that while not neglecting the day to day requirements of that existence, adequate provision, both in financial and intellectual resources, must be made to ensure that there are sufficient, and comprehensive research activities through which (a) present activities and systems will be made more efficient and more complete or as nearly so as possible, (b) Africa's all-round progress may be achieved at a rate that is commensurate with Africa's

expectations and modern civilization, and (c) Africa may also acquire new knowledge through its own efforts.

As science, technology and research cover a wide field, it may help to divide this section into three parts, viz.

- (i) The teaching and popularising of science,
- (ii) The OAU's Scientific Bureaus and field activities, and
- (iii) A possible programme for the immediate future in science, technology and research.

(i) Teaching and popularization of Science:

This is an age of science and of technology. Economic development of countries now depend largely on scientific growth, and the impact of this science on important sectors such as agriculture, industry, energy, minerals, irrigation, transport, communications, and other productive sectors. The effectiveness of science does, however, depend on the permeation of its principles and practices throughout the entire society, and these cannot come-by without the teaching and popularizing of science.

The basic ideas of science and technology and the scientific attitude must, therefore, preferably pervade the whole of the educational process. All children should be made to appreciate the importance of science and technology for the welfare of their country, even though many of them may find their careers in other fields. Science is no longer the pursuit of a few: it has become the concern of everyone as it is universally accepted that science means progress and development. Progress in the application of science will therefore depend on effective teaching of science as much in the elementary and secondary schools as in the universities.

1. Class teaching:

For African countries to develop rapidly in this atomic and space age, scientists of high calibre are needed. This may best be achieved by exposing students to as much science as possible during primary and secondary school days as above this level academic education is based on specialization in subjects. If necessary,

throughout elementary and secondary schools, the general education should have emphasis on science. This may entail a review or a re-orientation of the academic programmes.

For example in primary schools, each class could have one or two periods of simple science every day covering common things such as the colours of the rainbow and the movement of kerosine on lamp wicks. In secondary schools where biology, chemistry and physics are taught separately, provision should be made for an increase in the time allocated to science subjects. In this way, by the time the students graduate from high schools a number of them will have liked science so much that they will choose to major in science when they get to college. Those who do not qualify to go to college can still join some of the technical colleges and thus become the middle level technicians in occupations that require knowledge of elementary science.

2. Audio-Visual Aids:

The theories in the classrooms and the practical work in the laboratories should further be supplemented by audio-visual aids. Today there are teaching machines, radios, televisions, films and tape-recorders that teachers may use for special lessons. Things students see register better in their minds than those they just hear.

3. Field Trips:

Whenever possible, field trips should be organized to visit a factory or workshop nearby so that the students may see science at work. Many students see sugar, for example, but they do not know the process through which a sugar-cane plant goes before it becomes the sugar they use in tea, coffee, etc. It is quite possible that many students in primary and high schools may never have visited any factory. And for a young boy to see how the machines break up and "eat up" a sugar cane plant and finally produce the sugar he knows is quite something for him to remember. After seeing the process in real life, it is easier for him to comprehend and retain information on the scientific processes involved.

4. Science Clubs:

An active science club on a school campus would serve the purposes of further popularizing science very well. In such a club topics of special interest and on the level of the students would be discussed with the full participation of the members, of course, under the direction of the science teachers. The club can also plan to invite guest speakers from other nearby science institutions, and whenever possible field trips can be organized by the club. Scientific movies may be shown to such a club or plays based on scientific themes may be organized.

5. Scholarships and Fellowships:

These can be awarded in various ways but one way of doing it to the benefit of science is for the schools independently or in co-operation with their Governments to organize and grant scholarships to outstanding science students each year - say one scholarship for each class each year. With this reward ahead of them, the conscientious students will put in their very best in order to qualify for it. There are also the bursaries given at secondary school level by Governments or local Governments, and some of these could have a scientific bias, so as to encourage specialization in scientific subjects.

At the College and University levels this can be done differently. In places where Governments pay all or part of the university expenses for their students, these Governments can plan things in such a way that they offer more scholarships in science than in other subjects. In this way, the Governments will be sure of getting enough science graduates for their needs. With all the science preparation that all the students are supposed to have in primary and secondary schools as outlined above, there would be no problem of getting enough candidates for such offers.

One other attraction that can be used, if need be, is to offer science workers, e.g. teachers, a little better token sum above the other teachers, this can serve as a wonderful inducer to

students to take science subjects and join the teaching profession.

5. As for general popularization of science among the masses several methods could be used. Two of these are the use of mass media (e.g. radio and television) for giving simplified talks with themes drawn from everyday life occurrences, and the giving of talks to village clubs or regular community development congregations. Incidentally, the extramural activities of universities, colleges, and schools could play a very important role in both cases.

There are other ways of increasing the teaching of science and popularizing it, but the above suggestions offer perhaps the best approach to the problems.

(ii) The OAU's Scientific Bureaus and Field Activities:

The OAU has continued to take part on its own, in scientific and research matters, with the dual aim of serving Member States and of furthering the growth of scientific and technological knowledge - thus helping to expand scientific occupations and applications in Africa. The main part of this has centred on the OAU's scientific bureaux, whose previously reported major activities in the scientific and technical fields have continued during the past year. There were a number of setbacks in some of the activities as a result of difficulty of communication or inevitable changes arising from social changes in some parts of the continent. For example, some of the technical meetings scheduled for this year were postponed, due to a combination of unavoidable factors. The smooth flow of work of the scientific secretariat has also been affected by the problems attending the transfer of the technical bureaux from Europe to Africa. Despite these problems, the Secretariat has effectively continued to encourage joint action and technical co-operation in the continent. It will be well, in the first place, to report the progress made in the implementation of the instruction of the Heads of State in Resolution AHG/Dec.8 concerning the transfer of the Bureaux from Europe to Africa.

A. Transfer of Technical Bureaux to Africa:

1. The Transfer

The Heads of State decided to transfer the technical Bureaux of the S.T.F.C. to Africa locations as follows:

- (a) Inter-African Soils Bureau to Bangui, Central African Republic.
- (b) Inter-African Phyto-Sanitary Commission to Yaoundé, Cameroon.
- (c) Publications Office to Niamey, Niger Republic.

(a) Inter-African Phyto-Sanitary Commission (I.A.P.S.C.)

The Cameroon Government has made a house available for the office. A member of the Secretariat staff has inspected the location and it is considered that, for a start, the offices could be used, in the hope that more suitable accommodation will be provided later. The office machinery, equipment and archives arrived in Yaoundé towards the end of July. The office has since begun work in Yaoundé.

(b) Inter-African Bureau for Soils (B.I.S.)

This has been transferred to Bangui. The transportation difficulty of moving the archives and office machinery has been particularly great. They were first shipped from London to Pointe Noire and then by rivercraft from Pointe Noire to Bangui. The Secretariat is appreciative of the generous offer by the Government of the Republic of Central Africa of a house for the offices of this important bureau. The offices are being opened, though it will take some time to resume full normal activities. The problems of the offices in these new locations will be discussed later.

(c) Publications Office:

This has not obtained a permanent new office in Niamey. Meanwhile, in keeping with the instructions to move away from Europe, the publication activities are now being carried on from the S.T.R.C. offices in Lagos. The offices will be opened on a permanent basis in Niamey when accommodation becomes available.

II. Problems of Transfer:

There are two main problems, viz. (a) Personnel and (b) Finance.

(a) Personnel:

The first aspect of the staff problem is that of shortage of scientific personnel which is well known to be a universal problem in Africa. So that, even though the Secretariat has maintained a policy of operating with the minimum of staff, it has not been possible to fill the vacancies caused by the refusal of the expatriate staff to come to Africa with these offices. For example, the head of the Yaoundé office was offered another job before leaving London for Yaoundé; so that, despite our offer to pay him some inducement allowance, we still lost him. Similarly, the Bangui office is having considerable difficulty in finding essential technical staff. The Secretariat has advertised these posts through Member Governments and has contacted a number of scientists, inviting them to apply for these jobs. Most of these persons have either not replied to the invitations or have declined the request. The Secretariat would appeal to Member States to re-advertise these posts in their countries, so that normal activities might not be impaired.

The other aspect of the staff problem is the cost of obtaining suitably qualified persons. UNESCO, ECA and other International Organizations operating in these countries regularly make cost-of-living awards to their employees in keeping with the practice of the French Government which awards cost-of-living credits annually

to its technical assistance staff. For example, an officer on Scale P2 Step 5, i.e. 6880 U.S. dollars per annum, in Paris takes a basic salary of 8203 U.S. dollars in Bangui. In addition to this, the officer takes salary adjustment, housing, medical and insurance allowances. The actual figures of these payments have been inserted in the current budget because the officers are already in our service. The Secretariat would therefore appeal to the host States to do their utmost to help us to obtain the services of their own nationals for these bureaux, as this would help to reduce employment costs becoming unnecessarily heavy.

(b) Finance:

The financial problem has many aspects. Firstly, in 1965, the Council voted the sum of 15,000 U.S. dollars for the transfer of these offices to Africa. Since this sum of money was voted, three years ago, freight charges have risen considerably, and in these circumstances, it has become necessary to ask in the current budget for additional provision to cover the cost of transfer. Secondly, there is the need to establish these offices at the new locations. Most of the furniture in use in London and Paris, apart from the metal ware, was very old and was not worth moving. The Secretariat thus faces the problem of furnishing the offices at the new locations. In some cases, the furniture will come from neighbouring States and this means additional expense.

Since the decision to move these bureaux was taken, scientists have raised the further point that any bureau of this type should properly be located in a centre having an existing scientific community and comprising also such amenities as a University, a technical institute, a research institute and a laboratory, and that there should be adequate communication facilities. If these resources were already available, the OAU Bureaux would have less difficulty in recruiting staff and the cost of operation would be correspondingly reduced. Not only that, the Bureaux would be of greater immediate value in that its services would supplement the services of the other institutions. Scientists have therefore expressed scepticism about the present locations.

B. Second Meeting of the Scientific Council of Africa (C.S.A.):

The second meeting of the Scientific Council of Africa, the scientific adviser of the OAU technical bodies, was held in Addis Ababa from 8th - 12th April, 1967. The scientific priorities approved by the Heads of State at their previous meetings were reviewed by the Council in the light of the most recent developments. A number of important recommendations were made by the CSA which no doubt will be of tremendous value to technical officers of member States. Some of the most important recommendations of the previous meeting were repeated because the CSA was confident that action had not been taken by many States. These included:

I. Document L (65) 28:

The CSA asks that the attention of member States be again drawn to this document which spells out the need for

- (a) each State in Africa to have a national research council or a Ministry responsible for science and technology. Such a Ministry would be responsible for a National scientific policy.
- (b) training of scientific and technical personnel.

II. Eastern Rinderpest Campaign:

The CSA recommends "that Ethiopia, Sudan, Somalia, Kenya, Uganda and Tanzania should give the Joint Campaign urgent attention".

III. Panel of Consultants:

"In particular, it recommends the establishment of inter-African committees of Scientists in the following disciplines.

- (a) Biological Sciences: Botany, Zoology, Biology (general biology, marine biology and fisheries).

- (b) Physics and Mathematics Sciences and Technology: Physics (electronics, nuclear physics, theoretical physics); Chemistry, Mathematics (pure and applied); Applied Technology.
- (c) Earth Sciences: Geology, Geophysics, Mineralogy, Geography, Cartography, Geodesy; Climatology; Meteorology; Oceanography, Hydrology.
- (d) Medical Sciences and Pharmacology: Medicine (preventive public health epidemiology); Medical Biology; Pharmacology (African medicinal plants); Veterinary Sciences.
- (e) Agricultural Sciences: Agriculture; Food Science and Technology.
- (f) Natural Resources: Natural Resources; Conservation.

"Such committees will function under honorary Chairmen or inter-African Co-ordinators. They will assist the Secretariat in drawing up research and training programmes in their disciplines and in the problems of application of science to development, e.g. suggesting joint regional schemes and projects.

"The CSA considers that it is far more economical for the OAU Secretariat to work with such panels of scientists than to employ highly paid permanent scientific staff at great expense." It has therefore repeated this suggestion which was contained in the Recommendations of its first Lagos meeting of 1965.

IV. Training in Science and Technology:

"The C.S.A. once again emphasizes the importance of this problem and recommends that everything be done by the OAU to make every Member State to be science-conscious with a view to arousing each Member State to the effective awareness of the necessity and urgency of training adequate skilled personnel in scientific and technological disciplines at the professional and other levels.

"The CSA considers that, under present circumstances in Africa, and for short-term planning, priority must be given to the training of scientific and technical personnel of the middle and lower levels, after careful planning by each State. In the long term, the CSA supports the training plan proposed by the Lagos session of the STRC.

"After hearing the view of members of the CSA on the present position of technical training in each African State, and being aware of the necessity for closer collaboration among training centres in Africa, the CSA considers that it is necessary:

- "(a) for every African State to take fairly accurate stock of its needs for middle and lower level personnel with the possible help of the OAU;
- "(b) for each State or regional grouping to provide the OAU with maximum possible information on existing institutions capable of training middle level or lower level personnel;
- "(c) to co-ordinate the level of studies in these institutes, at least at the regional level, by the establishment of a system of equivalent degrees; and
- "(d) to ensure that the greater percentage of middle level grade personnel are trained in Africa rather than in foreign universities or institutions.

"In furtherance of these objectives, the CSA recommends that the OAU should:

- "(a) provide financial assistance to improve the efficiency and wider use of existing technical training institutions;
- "(b) provide scholarships and fellowships to enable students to take advantage of these facilities."

V. Priorities for Research and Development in Africa:

The CSA "considers that in view of the merger of the Scientific, Technical and Research Commission, the Educational and Cultural Commission, and the Health, Sanitation and Nutrition Commission, the priorities suggested by the United Nations Advisory Committee on the Application of Science and Technology to Development (UNACAST) in respect of medicine, public health, pharmacy and education should be added to the existing priorities already outlined at its first meeting, viz:

- "(a) Agriculture: Crop research, animal production and pastures, soil research, forestry research, humid tropical research, arid zones, savannah zones;
- "(b) Oceanography and Fisheries Research: (Marine and fresh water).
- "(c) Biological Research: Aquatic Biology, taxonomy and ecology - plants and animals (including phytogeography);
- "(d) Industrial and Technological Research: geology and geophysics, atomic energy and its application, building materials and methods of construction, roads, solar energy, hydrology and meteorology;
- "(e) Physical and Mathematical Research: physics and chemistry;
- "(f) Medical, Public Health and Applied Pharmacology; (including African medicinal plants)."

VI. Expansion of Higher Education facilities.

The CSA has also started to examine the contents of these priorities and has, for example, recommended that in view of the urgency of the need to expand opportunities for scientific training in Africa and having regard to the high capital and recurrent costs of establishing new centres, "the OAU (should) endow chairs in existing universities in the disciplines specified under the future scientific programme outlined elsewhere below.

VII. Fisheries:

Furthermore, the Scientific Council of Africa (CSA) noted that in Fisheries, there is at present plenty of competition by foreign trawlers fishing in the seas around Africa. It therefore "recommends that the OAU should look into the problem of territorial waters," and that member States should "extend their territorial waters up to the twelve mile limit as has been done elsewhere in the world in order to reserve resources within these limits for national use."

VIII. Attendance at Meetings:

The CSA has raised one urgent but new problem which deserves attention even though the Ministerial Commission has not considered it. The problem concerns attendance at meetings and the comments of the CSA read:

"The problem of poor attendance at the meetings of the CSA was discussed at length, and the CSA expressed deep concern at the failure of many of the members to participate in the meetings. The CSA emphasized the need for improving the present state of affairs in order to enable African Scientists to play their vital role in the achievement of the objectives of the OAU. It notes that under the aegis of the OCTA there was no difficulty in obtaining good attendance because the Organization met the full costs of the participating members. It observes, however, that the OAU has insisted that travelling expenses of the members should be met by the respective States individually. The CSA recommends that the OAU be requested again to create a central fund for the travelling of CSA members in order to make fuller use of the continent's Scientists who are so vital to the Organization's aspirations."

The Secretariat has already circulated the detailed recommendations of the CSA meeting vide document ESCHC/25 to Member States for their attention and that of their technical officers.

C: Joint and Co-operative Projects:

I. Rinderpest Campaign:

The mass vaccination of cattle against rinderpest has continued. Phase II of the project which started in 1964 will be completed at the end of 1967. This Phase covers Ivory Coast, Dahomey, Ghana, Upper Volta, Mali, Niger, Togo and Nigeria. Up to now, 8.8 million of the 9 million cattle in these areas have been vaccinated. The Secretariat hopes that the few remaining cattle will be covered before the end of 1967. Phase III which started in Chad, Mauritania, Gambia, Senegal, Sierra Leone, Guinea, Liberia, Mali and Upper Volta late in 1966 is progressing according to plan. There has been some difficulty in obtaining three or four additional qualified veterinarians to assist some member States on the project. The Secretariat is making relentless efforts to obtain the services of these veterinarians so that the tempo of the mass vaccination may be maintained in these States. At a technical meeting in Dakar in July, 1967, the position of the projects was reviewed. The experts of Member States were satisfied that the health of cattle has improved considerably in all States and outbreaks of the disease are now negligible.

The Secretariat would like to repeat the appeal of the CSA to Eastern States where the scourge is still a menace to cattle. The success of joint action in Western States should guide us in the East. The Secretariat cannot take action unless member States concerned are willing to co-operate. In February, officials of the Secretariat discussed this urgent problem with the delegations of Ethiopia, Somalia, Kenya, Uganda, Sudan and Tanzania. Letters were delivered to the delegations with requests for an early reply to enable the Secretariat to take definitive and positive action. So far, only Ethiopia and Somalia have sent replies. The Secretariat would appreciate early attention on the part of Sudan, Uganda, Kenya and Tanzania. It may again be emphasized that unless a comparable mass vaccination campaign, covering the whole of Eastern Africa, is carried out, individual national efforts will be stifled by movement of trace- and/or refugee-cattle across the border from neighbouring States.

II. Trypanosomiasis:

This is a uniquely tropical African scourge of both man and animals. The OAU has been encouraged by the routine research activities in progress in Bobo-Dioulasso (Upper Volta), Kaduna (Nigeria) EARTO (Uganda) and in other Veterinary Laboratories in Member States. Early in November 1966 research workers were brought together at the meeting of the OAU International Scientific Council on Trypanosomiasis Research (ISCTR). The Scientists discussed, among other things, the progress of research on this problem, methods of field control of the disease and possible eradication campaigns in selected regions of the continent. The meeting suggested that Member States should apply known methods of checking the disease by clearing and spraying. It was recognised, however, that concerted action against the disease by contiguous countries could only be taken in limited areas like the Kissi area of Guinea, Liberia, Chad, Niger and Cameroun. The cost of a field campaign like the rinderpest campaign would be very high, and yet it was not established that such a campaign would be an effective check on the disease. The Secretariat will continue to encourage research on trypanosomiasis until a break-through is achieved in the development effort to eradicate the disease.

III. Contagious Bovine Fleuro-pneumonia (CBPP) - J.F. 16:

According to the latest report from a joint OAU/FAO/OIE experts meeting held in Khartoum, in February, 1967, the CBPP research project known as J.F.16 has made some progress towards developing an efficient vaccine against the disease. The project was launched some four years ago with financial and technical assistance from EEC, USAID and UK technical assistance. Lately the United Nations Development Fund has been helping the CBPP research project in Sudan. Research work has been going on at the East African Veterinary Research Organization (EAVRO) laboratory in Kenya, Farcha in Chad, Hann in Senegal and Vom in Nigeria.

Up to now, different types (or strains) of CBPP vaccines have been used in different countries with varying success. Some countries (Australia) use V.5 vaccine successfully, others (West Africa) use T.3 broth vaccine and KH₃J broth vaccine, while T.1 broth

culture vaccine has been widely used with success in local eradication campaigns in Uganda and parts of Tanzania. Whilst there might be some who still doubt the value of CBPP vaccines, the experts who met in Khartoum agreed that effective vaccination raised the mean level of resistance in a herd and that field experience in both Australia and Africa over many years supported the value of vaccination.

At the Khartoum meeting of experts, it was revealed that a combined vaccine against both rinderpest and CBPP has been developed at the Farcha Laboratory in Chad. If this vaccine finally proves sufficiently effective, it will save Member States some expenditure in the fight against the two diseases.

IV. Cereal Crops Research (J.I.26):

The basic experimental work on the improvement of Cereal Crops which has been in progress for the last two years has continued during the period under review. The project seeks the co-ordination and reinforcement of research aimed at improved varieties and cultivation methods of the major cereal crops namely, maize, millet and sorghum. These cereals comprise an important element of the food of the people in savannah zones of Africa. During the period under review, improved grains of cereals which had been developed at the Institute of Agricultural Research, Ahmadu Bello University (headquarters of the project) were distributed to all Member States co-operating in the scheme, the objective being to encourage the multiplication of these improved and resistant varieties in the first instance at experimental stations of Member States and, when this has been proved to be suitable, under all relevant conditions, the seed will find themselves in the hands of farmers through the medium of the Agricultural Extension Services of Member States.

So far, co-operation in this activity covers Uganda, Kenya, Tanzania (EAFRO) Nigeria, Cameroon, Ethiopia, Ghana, Ivory Coast, Senegal, Upper Volta, Niger, Chad, Malawi and Zambia.

D: General:

I. Technical Bureaux:

The Inter-African Bureau for Animal Health (IBAH), Inter-African Bureau for Soils (BIS), Inter-African Phyto-Sanitary Commission (IAPSC) and the Joint Nutrition Commission are functioning as usual. The transfer of BIS and IAPSC to Africa will of course affect the flow of their work to some extent. The Secretariat hopes that by early 1968, these organs will be in a position to resume normal activities as in past years.

II. Miscellaneous:

Sales of technical publications have been at the usual level during the year. Revenue from this source has been on an average of 1,500 U.S. dollars per month. The following new technical publications were published during the year of report:

	<u>Price:</u>
Bulletin of Epizootic Diseases of Africa (Four numbers per year)	2. 10. 0
African Soils (Three numbers per year)	2. 10. 0
Symposium on the Maintenance and Improvement of Soil Fertility (Khartoum, 1965)	2. 10. 0
C.S.A. Specialist Meeting on Crustaceans	4. 0. 0
11th Meeting of ISCTR (Trypanosomiasis)	1. 5. 0

Cont./.....35

(iii) Proposed Programmes in Science, Technology and Research for
the Immediate Future:

Assuming that the recommendations of the Scientific Council of Africa will be accepted by the other organs of the OAU, the programme in Science, Technology and Research for the immediate future is presented here as drawn from the deliberations and recommendations of that organ. As is very well known, most Member States have a scarcity of trained personnel in Scientific skills such as in geology, electronics, meteorology, climatology, medicine, hydrology, veterinary, physics, mathematics and oceanography. Although this scarcity is very evident in most Member States, it is to be noted that these are mainly skills in which the work-load is such that one person can cover a very wide field and also generate sufficient work for many persons of lesser qualifications. The demand for such specialized skills is, therefore, comparatively small. Because of that, and considering the stage in development of most, if not, all Member States of the OAU, it may be assumed that only a few trained persons in each group would be required to meet the available work in individual States with continuing training catering for increases in that work. Normally, it would be too expensive for each state to establish a training centre for training each of the skills concerned seeing that only a small number of personnel with the specialized skills is required in each case. But when demand for these specialized skills is considered on a continental basis, and when considering that the economic and social development in Member States is slowly gathering momentum, one would be justified in stating that there would be sufficient candidates from all Member States to use to the maximum the facilities that would be offered by one continental training centre in each of the specialized skills mentioned. It is because of these considerations that the General Secretariat proposed in document ESC/4 that the OAU should consider the establishment of continental training and research institutions - which would be considered as Africa's Centres of Excellence for training and research in:-

1. Geology and Minerology;
2. Climatology and Meteorology;
3. Tropical Medicine and Public Health;
4. Electronics; and
5. Hydrology.

The case for each of the above centres is covered in that document to which attention is invited. The Scientific Council of Africa not only accepted the proposals made by the General Secretariat in this respect, but in fact went further to recommend (vide Recommendation III) that these should be expanded as follows:-

1. Geology, Geophysics and Minerology;
2. Climatology and Meteorology;
3. Hydrology;
4. Human Medicine (preventive and social medicine) and Pharmacology (African medicinal plants);
5. Food Science and Technology;
6. Veterinary Medicine;
7. Physics and Mathematics (including Electronics and Research in Solar Energy); and
8. Oceanography, Marine Biology and Fisheries.

The General Secretariat hopes that Member States will endorse the Scientific Council's acceptance of the suggestion of establishing continental centres in training and research in specialized fields to cater for all Member States. Such a move would not only ensure that Africa trains its own citizens in the specialized skills required to exploit to the maximum its own natural resources and to man other vital national services, but also to ensure that Africa obtains accelerated development in economic and social spheres. The proposed method of establishing the Centres of Excellence in training and research, using as suggested, the pooled financial and intellectual resources of Member States, would ensure that the cost to individual Member States of training such specialized personnel is the minimum possible in the circumstances

currently obtaining in Africa. After Stating the above, the General Secretariat would suggest that Member States should accept in principle the establishment of Centres of Excellence in training and research in the specified scientific fields as recommended by the CSA. Further, Member States are invited to direct that the General Secretariat should, with the help of the United Nations Specialized Agencies, make a thorough study of the material needs, conditions and costs of establishing Centres of Excellence in Africa in Geology and Mineralogy, Climatology and Meteorology, Human Medicine and Public Health, Electronics and Hydrology and present the results of the studies to the Council of Ministers together with a programme for their establishment.

Although the Centres of Excellence as conceived in document ESCHC/4 and as recommended by the Scientific Council of Africa envisaged not only the training of Africans in the specialized skills covered but also the undertaking of appropriate research in those fields, the General Secretariat considered it necessary and the CSA also recommended, that it is vital to establish research programmes in fields in which Africa stands to gain through rapid exploitation of its natural resources or through increasing productivity. In document ESCHC/5 the General Secretariat endeavoured to identify areas in which such research could bestore early maximum benefits to individual OAU Member States. The fields selected by the Secretariat and which have been endorsed by the CSA include research in:-

1. Solar Energy;
2. Grain Storage;
3. Seed Improvement;
4. Endo- and Ecto-parasites in economic livestock; and
5. Ocean and Marine Biology.

The reasons why the five fields are selected as a start for concentrated and co-ordinated research in Africa have been covered in that document. It is to be noted that previously the Scientific Council of Africa had recommended and the competent organs of the OAU had already approved that research should be undertaken, among others, in these fields, and in its Recommendation XVIII entitled

"Priorities for Scientific Research and Development in Africa" the CSA once again outlined the areas in which research is necessary if this is to play its rightful role in helping in the rapid development of economic and social services in Africa.. That recommendation gives the priority list of the CSA in the field of scientific research and development in Africa. The list that the General Secretariat presented in document ESCHC/5 is an attempt to pick out from the priority list what research programmes appear to require a small effort to yield large results and which could be managed easily in the first instance. Member States are invited to direct the General Secretariat to undertake the necessary formulation of plans to initiate research programmes as recommended in document ESCHC/5 in Solar energy, Grain storage, Seed improvement, Endo- and Ecto-parasites in economic livestock and in Ocean and marine biology. Incidentally, the United Nations Advisory Committee on the Application of Science and Technology to Development (UNACAST) and the Economic Commission for Africa are already in consultation with the General Secretariat in this connection and it is hoped to undertake joint action in scientific research and development in Africa. The same joint approach applies to the general growth and application of science and technology.

Although training and research in oceanography, marine biology, sea and inland fisheries are subjects that are covered in the research programmes dealt with above, it is felt that these subjects merit special mention here. In document ESCHC/23 the General Secretariat attempted to indicate the importance of training personnel both at the higher and middle levels in oceanography and fisheries. The aim here is to ensure that the fishes found in oceans surrounding Africa and the fish potential in these and the inland waters is used to the maximum benefit to Member States. It is re-emphasized that, every effort should be made now to train Africans in oceanography and fisheries so that the rich harvest that can be obtained from oceans and inland waters may be reaped to the benefit of Member States. To ensure that the natural resources to be found in territorial waters are reserved only for the use of nationals of

Member States, it is strongly suggested that coastal Member States which have not yet done so should extend their territorial waters to the maximum of 12 miles limit allowed by the United Nations Conference on the Law of the Sea (vide articles 1, 3, 6 and 66 of the report of that Conference).

While the foregoing has dealt, among others, with the training of the highest possible skills in the specified fields, it is to be noted that the application of those skills would be seriously hindered and in some cases rendered useless if there were no middle grade personnel to carry out the related work involved. It has already been stated that there is a scarcity of middle grade personnel in scientific disciplines, and in its Recommendation XV the Scientific Council of Africa once again emphasized the need for OAU Member States to undertake as soon as possible the training of these middle grade personnel in scientific disciplines. It further recommended that financial provision should be made and scholarships should be offered by Member States to ensure the early establishment of programmes for that training. Member States are invited to direct that the General Secretariat of the OAU should draw up training schemes in this connection to be connected with the establishment of Centres of Excellence or with existing institutions.

Incidentally the Scientific Council recommended that the General Secretariat's proposal for the establishment of an inter-African Bureau in Mechanization of Agriculture in Botswana (vide document ESCHC/9) should be postponed for the present pending the carrying out of relevant specified studies by the General Secretariat. Similarly, the Scientific Council postponed the founding of an OAU Scientific Journal (document ESCHC/6) and the Establishment of a Museum for African Natural history (document ESCHC/6).

It is the General Secretariat's view that because of the demands in the developing countries for the raising of standards of living obtaining, and in view of the general state of international politics as currently practised in the world, OAU Member States should not expect much help from individual developed countries in the training of Africans in specialized skills such as geology, minerology, electronics, veterinary, oceanography, human medicine, physics,

mathematics and similar skills. For these are the skills which the developed countries are also in great demand of and hence cannot be spared - except at considerable cost or strings - to other countries. Africa with the help from the United Nations and other friendly sources can make every effort now to establish its own Centres of Excellence for training its own citizens in specialized fields and for undertaking research in those fields to ensure that its own economic, social, scientific and technological development grows fast enough to ensure the early attainment of the highest levels of standards of living existing anywhere in the world. The programme proposed by the General Secretariat in science, technology and research, and in particular, in the training of Africans in the specialized scientific skills both at the higher professional level and at the middle grade level is designed to initiate action in these very important matters and to create the necessary infrastructure for ^{continuing} training and research in Africa. Member States are invited to accept that the proposed actions should be undertaken as directed by the competent organs of the OAU.

AFRICAN CULTURE

(a) General:

Culture may be defined as the habitual and homogeneous modes of living and expression of a given community. These modes of living and expression usually include traditions, ceremonies, drama, literature, dances, songs, musical instruments, fine art (paintings, sculptures, etc.) handicrafts and household utensils, furniture, etc.

Handicrafts and paintings are some of the most important expression of the African people and to understand and appreciate them is to understand and appreciate the cultural heritage. In both handicraft and painting arts the raw material used whether it be grass, wood, stone, or pigments, are used to carry the thoughts of a craftsman or artist, making something to fulfil a useful purpose, or to express a deep conviction of stirring experience.

The sensitive craftsman, although setting out to make a chair or basket, is struggling also with the principle of design which a sculptor manipulates, that is, form, texture and colour with the due regard to balance, proportion, sequence, contrast, harmony and rhythm.

The important fact in creative work is that human imagination has, through the working of man's hands, been impressed upon the raw materials he has used and therefore, in ageless stone, or less permanent wood, his thought remain enshrined long after he's gone. The value of the stone, or other materials, is infinitesimal compared with the new meaning which has been given to it or the representational value that has been thus created. Naturally, since all human beings differ from one another in their talents and ability, so the value of the work they produce varies considerably.

Turning to the other African cultural aspects such as tribal traditions, music, folk-songs, drama and instrumental music, one finds such a variety that it is impossible to make one general statement that would satisfy all. There are hundreds of tribes in Africa and consequently hundreds of different cultures too. Each tribal culture has its own identity, its own methods of expressing things and its own versions of human experiences. Most of the historical occurrences that have taken place and which have helped to mould the culture of a given community, whether they be wars, disease epidemics, famine, witchcraft or superstitions, to mention a few, have left behind them permanent distinguishing marks on the culture of any given group of people in Africa. These marks and expressions of them vary considerably from one group to another, hence the richness and fertility of Africa's culture. In order to learn about and compare these different cultures, there is a need for festivals on African Culture. This need is not something that is now just being felt; it had been recognized from the time the OAU was founded. Mentioning it here merely repeats what is known: Africa needs a regular cultural festival.

African traditions are numerous and of considerable interest. For example, many tribes in Africa accept and practice polygamy, pay bride price so that a man can have as many wives as he can afford. But the courtship and marriage ceremonies differ from one tribe to another. Some tribes circumcise both men and women, some circumcise just the men while others do not circumcise either men or women. In either case, the importance and ceremonies that are attached to these traditions vary considerably from one tribe to another. These are just two examples but they emphasize the fact that African traditions are not altogether homogeneous. There are variations to many of the African customs that make these cultures so colourful.

Music is another aspect of the African culture that defies any generalization that any one would like to make. Much of the African music is characterized with emotional vigour and sometimes with "wild" and explosive feelings which are often misunderstood by foreigners. But to the indigenous people, this is just one effective method of getting a certain message across to the listeners or to a particular person. The African musicians, whether they be vocal singers who sing folk songs or other kinds of music, or whether they be those who produce instrumental and vocal music combined or just those who play certain instrumental music, they all have one thing in common - to bring a desired effect on their listeners, or to be understood by a particular person. Quite often they have been successful in causing laughter or tears, or hysterical terror to their audiences. But again the degree of achieving these things varies considerably from one musician to another and from one tribe to another. A festival for such music would be among other things quite educational. Education in varied cultures is better transmitted through regular festivals.

A good education should not only teach about the greatest achievement of mankind but should also, among other things, impart standards of judgement enabling one to some extent to assess those achievements for oneself. This can best be done by comparing one piece of work with another and evaluating their merits. Gradually those works which are only copies will be pushed on one side and only those which are original, vital and add something of importance to man's

experience will be found capable of giving that appreciation, understanding and satisfaction that are frequently sought in these cases.

In order to be able to achieve what has been described above it is necessary to organize festivals and exhibitions of the components of various African Cultures, for example, exhibitions of African fine art-sculpture, painting, wood carving, etc.; handicrafts; festivals of music and drama. The field of African culture is so vast and so varied that only by organizing such activities can one get to appreciate some of the cultural work by Africans that might otherwise pass away forever uncommended.

(b) Future Programme:

A suitable procedure to follow for organizing one of these festivals regularly could be as recommended in paper ESCHC/7 entitled "Organization of an All-African Festival of African Drama, Folk-songs and Instrumental music", which was supposed to have been considered by the Commission last May. In that paper it was recommended that these festivals which should be self-sufficient financially, be organized to take place every two years and that the Member States would be called upon to pay participation fees only.

This method of financing the festival is similar to the one used in the All African Games, the Olympic Games and other similar regular meetings of sportsmen. For example, each of the 29 Independent African States that took part in the first All African Games that were held in Brazzaville, Congo, were requested to pay 300,000 F.F. to cover the costs of staging the games. In the new constitution under which the 2nd All African Games will be held in Bamako, Mali, 1969, the clause concerning the costs reads as follows:

"The General Assembly (of the Games) will fix the financial quota, to be paid by each country which will be a pro-rata rate based on the number of participating athletes and seconds."

This method could lead to an impasse should a large number of states refuse to send participants. The OAU would therefore be called upon to guarantee the festival against such unforeseeable and unlikely losses. Under the proposed method of financing the festival, each Member State would each pay a flat portion of the expected costs, and the rate could be attached to a fixed number of participants. Any increase over that number of participants could be subject to commensurate increase in subscription above the basic minimum payment. Other variations can be agreed upon. For example, in the Olympics in 1964 in Japan, the Government of Japan provided all services against the flat rate per country as mentioned above but each state - team had to pay for food separately. The Festival would be expected to defray its costs from participation fees and from gate fees. Donations would be most welcome.

The Charter permits the OAU to take such actions as would ensure that African cultures are cultivated, developed and given a forum for expression to enrich our Africans. Therefore the present proposal to sponsor a "self-financing" All African Festival of African drama, folk-songs and instrumental music is an appropriate measure in that direction. Member States are invited to accept the organization of these regular festivals, and to direct that the General Secretariat should take appropriate and early action.

GENERAL RELATED SUBJECTS

Besides the documents covered above, the General Secretariat has prepared proposals in certain related fields which do not necessarily fall under any one of the headings that have been covered so far. These are now taken up one by one:

(a) Natural Resources:

- (i) Preliminary Draft African Convention for the Conservation
of Nature and Natural Resources - Document ESCHC/19:

The history behind this first preliminary draft is already known to Member States. It was at the request of the OAU that the International Union for the Conservation of Nature was requested to

draw up a convention with the assistance of UNESCO and FAO, covering the conservation of nature and natural resources. The IUCN produced a draft which has already been circulated to Member States (vide Note. No. STA 10/2/10 of 31st January, 1967). It should be mentioned that compared to the London Convention of 1933 which is still being applied in this particular field, the present draft allows African States, which are the ones concerned, to discuss and agree upon what should be included in the convention dealing with the conservation and preservation of nature and natural resources. The aim here is to have such a convention as will be applicable throughout the African continent and which, while ensuring that rare species of plants, animals and other natural habitats are preserved for posterity, gives man the necessary room to develop himself to the highest standard of living possible. It is hoped that the amendments that may be forthcoming will not delay the finalization of this draft at this session and that it may be put to the Assembly of Heads of State and Government for necessary approval, pending national ratification.

(ii) Draft Phyto-Sanitary Convention for Africa -
Document ESCHC/18:

After considerable discussions among African experts, it was decided to revise the previous phyto-sanitary convention and introduce one that would cover the whole continent. At present African States come under a number of phyto-sanitary conventions. The purpose of a phyto-sanitary convention is to ensure that existing plant diseases are eliminated or controlled and that stringent measures are taken to avoid the introduction of new plant diseases to Africa from outside, or from one state into another. When it is realized, for example, that the coffee disease and the cocoa disease (swollen shoot) can destroy and render useless a whole crop, thus spelling financial difficulties for the families depending on them, it will be accepted, it is hoped, that there is a need to eliminate existing plant diseases and to take measures to prevent the introduction of new diseases into Africa. For this purpose, it is necessary to have protective and preventive regulations

that apply throughout Africa and hence the phyto-sanitary convention. Here again it is hoped that that convention will be passed to the Assembly of Heads of State and Government for finalization, and thence to Member States for ratification.

(iii) Study Programme for the General Secretariat:

In its functions, the General Secretariat, which was created mainly as an administrative and executive unit of the OAU, has the duty, among others, of placing at the disposal of the Specialized Commissions "technical services that may be requested for in relevant fields." Stretching the coverage of this function allows the General Secretariat to undertake studies which would enable it to give the specialized Commissions background information on relevant topics, either on the basis of requests or on the basis of trends and needs as gleaned from pronouncements of African leaders or officials. It is with this background in mind that document ESCHC/20 on the study programme for the General Secretariat was written. The three subjects that are proposed for study by the General Secretariat (i.e. Inventory of Minerals, Language problems and the use of Atomic Energy for peaceful purposes) all appear in some of the requests that the Specialized Agencies concerned have made.

Minerals provide a base for industrialization (by enabling metal processing or manufacturing to be undertaken or by providing foreign currency for the establishment of required industries) and also, they provide incomes with which to raise standards of living. The existence of full and adequate information on the minerals known to exist within Member States would therefore facilitate any, or all of these processes.

Language problems prevent easy communications among some African States, thus preventing inter-State trade, communications or cultural exchanges. The removal of these problems would facilitate inter-African trade and contacts, which in turn would assist in the rapid economic development of Member States.

The new techniques that use atomic energy in fields such as medicine, agriculture and industry, stand to benefit developing countries which do not have to bother about the costs of repercussions of replacing old existing systems. The presence of a few Africans who are trained in the use of atomic energy for peaceful purposes also makes this field one of the few that are easily amenable to group-treatment, and as such suitable for the OAU to be involved in. It is because of these that the use of atomic energy for peaceful purposes was chosen for special study by the General Secretariat. All the three studies fall under the use of natural resources.

Member States are invited to endorse the list of items that the General Secretariat has put forward for special study. It should be stated that these studies would be undertaken in addition to normal routine work or to other work that may be put on the General Secretariat.

(b) Priorities in training schemes:

Although this subject has been covered under various headings elsewhere above, the General Secretariat considers that it calls for additional mention. In document ESCHC/8, the General Secretariat endeavoured to indicate the four main ways in which the OAU may be involved in training schemes. These are:

- (a) (i) Training financed wholly by the OAU,
(ii) Services connected with training which the OAU would undertake;
- (b) Joint Training schemes -
 - (i) With Member States
 - (ii) With external international organizations;
- (c) Training schemes offered by Member States; and
- (d) Training schemes offered by external international organizations to the OAU.

Member States are invited to consider both the continental, regional and individual methods in which the OAU could finance and stimulate training of Africans in the professional skills as well as in middle grade skills. Naturally, all the methods call for an increasing use of both financial and intellectual resources, but provided Member States pool whatever of these resources that they have, and provided their training plans are co-ordinated and harmonized, there could be established a training infrastructure on the African continent which would ensure an increasing supply of trained personnel at all levels, at the minimum cost to Member States. It is hoped that the will and courage to make a start in creating that continental or regional training infrastructure will be forthcoming from Member States.

(c) The establishment of National Civil Defence Corps:

In document ESCHC/28 the General Secretariat proposed the establishment of properly co-ordinated and adequately supplied National Civil Defence Corps, which could be used to rescue persons in trouble or to alleviate human sufferings in disasters such as earthquakes, floods, cyclones or fires. This move was prompted by the increase in human losses and sufferings which occurred in other places, which could have been avoided by having recognized national civil defence corps. These occurrences confirmed the view that the existence of civil defence corps - which in themselves were initially conceived as part of a country's war effort to obviate losses among civilians and property - does not prevent such losses or sufferings unless there is a clear system of lines of command and leadership to the highest national level, hence the proposal in document ESCHC/28.

This proposal to establish national civil defence corps in individual Member States, partly concerns health (in the saving of lives, in treating the wounded and in establishing temporary anti-disease living conditions), partly nutrition (in the emergency feeding of those who have lost their homes and food) and partly cultural (in the attempts to salvage and save cultural items that could be destroyed).

Member States are invited to accept and implement this proposal to establish national civil defence corps as outlined in document ESCHC/28.

(d) Dealings with the United Nations Specialized Agencies -

Documents ESCHC/12 - 17 inclusive dealing with the draft agreements between the OAU and UNESCO, FAO, IAEA, WHO and UNICEF:

The drafts agreements with UNESCO, FAO, IAEA and WHO have already been circulated to Member States and it is hoped that they will be finalized by the Assembly of Heads of State and Government after being approved by the Council of Ministers this year. These agreements are designed to facilitate and smoothen the co-operation and relationship between the OAU and the Agencies concerned. It should be stated that while they are being negotiated, blooming co-operation and close relationship are continuing aspects of the contacts between the OAU and the United Nations Specialized Agencies concerned. The signing of the agreements would merely regularise whatever has been going on between the OAU and these Agencies and would also help in facilitating extended co-operation in the relevant fields. Above all, signed agreements will help the planners of both sides to hatch out programmes or projects of mutual interest, and which could be undertaken through joint action.

Talking of co-operation and anticipated contacts between the OAU and the United Nations Specialized Agencies, the General Secretariat has endeavoured in document ESCHC/17 to indicate possible lines of development in the near future. That development is expected to concentrate on the training of Africans in various skills - both professional and middle grade personnel - and the establishment of economic (especially industrial) and social services which contribute to the raising of standards of living. This is a subject for further discussion as not all cases have been discussed here nor has there been an opportunity to here the views of Member States within an OAU context. It is hoped that Member States will

indicate what they expect to be achieved by co-operating with the United Nations Specialized Agencies and how they can maximize the individual and collective benefits to be obtained therefrom. The draft agreements already circulated, provide basic frames within which all these and expected actions can be carried out, and it is hoped that these agreements will now be finalized as far as the OAU is concerned so that 1968 may see the beginning of their implementation.

STAFF POSITION:

The following is the staff disposition in the Cultural and Scientific Department (including the Scientific Bureaus).

	<u>Establishment</u>	<u>On Post</u>	<u>Posts Offered</u>	<u>Vacant</u>
Headquarters - Professionals (Addis Ababa)	7	1	3	3
Other	4	1	-	3
Lagos - Professionals	6	2	-	4
- Other	22	22	-	-
Bangui (B.I.S.)				
- Professionals	4	1	1	2
- Other	6	-	2	4
Yaounde (I.P.S.B.)				
- Professionals	2	2	-	-
- Other	1+	-	-	1+
Muguga (I.B.A.H.)				
- Professionals	3	2	-	1
- Other	4	3	-	1
Niamey (Publication Office)				
- Professionals	1	1	-	-
- Other	1+	-	-	1+
T O T A L	61+	35	6	20+

It will be noted from the above that, in the posts that are most important, i.e. the professionals, out of an establishment of 23 only 8 are already in their posts - the rest being vacant.

Of the 15 vacant posts, only 4 have been offered to possible candidates, whose replies (either positive or negative) are awaited. Should they accept, then the disposition of staff will improve slightly, although not satisfactorily for the efficient and adequate performance of the work involved. With the present methods of recruiting, which were instituted only this year, it is hoped to fill the remaining posts during the current financial year. It should, however, be appreciated that the scientific disciplines that are relevant in this Department are those in which only a few Africans have been trained. Consequently, the demand for such skills by national Governments and international organizations have exhausted the available candidates. It is hoped that in cases of direct requests to Member States for specified personnel, which it is hoped to make, some States may find it possible to release their nationals for OAU service, either on a permanent basis or on secondment.

TO CONCLUDE

This report, which concerns the activities of the OAU and proposals, in the educational, scientific, technological, health and cultural matters, attempts to lay a sound foundation on which to build African institutions that will assist Member States "to harness the natural and human resources of our continent for the total advancement of our peoples in spheres of human endeavours" - to quote the OAU Charter. Such a foundation should include the establishment in Africa of Centres of Excellence for training Africans to the highest degree possible in scientific professions and in human development as proposed under Science and Education above, so that Africans may better undertake the efficient and fruitful exploitation of Africa's natural resources. Such a foundation should include the co-ordinated and co-operative efforts in beneficial utilization of the agricultural potential of Africa as would be the case if the proposals for establishing stocks of food grains, and for using the sahara and semi-desert lands for economic purposes were accepted and implemented.

Such a foundation should include co-ordinated and scientific exploitation of Africa's natural resources as suggested in documents on oceanography, sea and inland fisheries a training research and on special studies. Such a foundation should include co-ordinated and co-operative schemes designed to safeguard the good health of Africans as suggested in the documents on stocks of vaccines and medicines, on rural health and on national civil defence corps.

The process of laying such a foundation has just started, but needs to be translated into concrete things, such as those proposed here.

With its political and specialized organs, plus its General Secretariat, the OAU has the machinery for conceiving and implementing the projects and programmes concerned, provided there is the will and courage to make a start with the available financial and intellectual resources. Outside forces that are attempting to detract the OAU from these responsibilities, or even to neutralize and eliminate it altogether, should be stopped from doing so. Internal forces that create obstacles or bring in disruptive influences should be the subject of open discussion, of a compromise where possible and in any case, of a settlement in the interest of the majority.

Member States are invited to consider these proposals with the knowledge that the OAU Charter has directed that in order "to harness the natural and human resources of our continent for the total advancement of our people in spheres of human endeavour", the Member States are expected to "intensify their co-operation and activities in educational, cultural, scientific, technological, research, health, sanitation and nutrition fields - among others. It is hoped that Member States will accept these proposals and direct that they be implemented, so that some of the objectives of the OAU, as outlined in its Charter, may be translated into concrete achievements aimed at raising the standards of living obtaining in Africa.

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