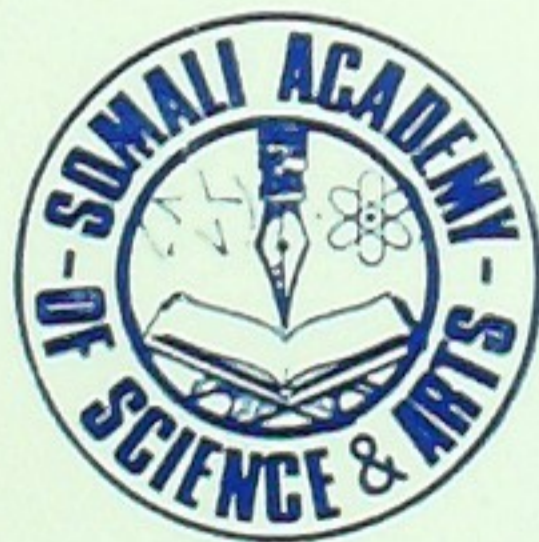


TRANSACTIONS
OF THE
SOMALI ACADEMY
OF SCIENCES AND ARTS

VOLUME 1

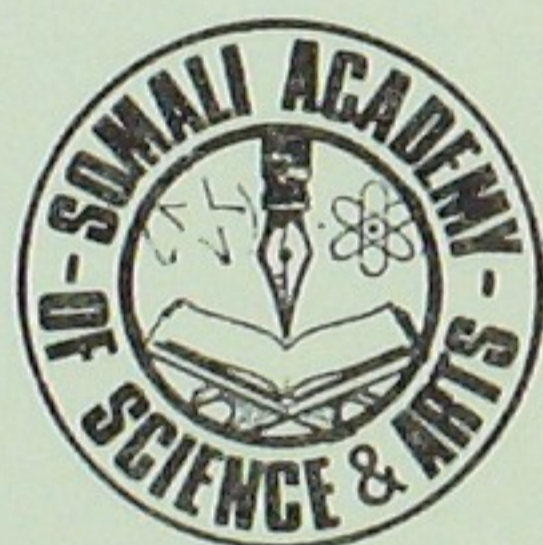


MOGADISHU 1987

TRANSACTIONS

OF THE

SOMALI ACADEMY OF SCIENCES AND ARTS



VOLUME 1

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WARGEYSKA

AKADEMIYADA CIMILGA & FANKA



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MOGADISHU 1987

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FOREWORD

The Somali Academy of Sciences and Arts was founded in 1979, and some of its principal aims and objectives, as indicated in the introductory part of this publication, are the development of scientific research in Somalia, the gathering of documents on Somali history and oral traditions, the study of the Somali language and to appreciate its artistic and cultural heritage. In the field of the natural sciences special attention is being given to the study of the environment, the flora and fauna and geology, with a view to understanding the importance of the renewable and the non-renewable resources of the land and the seas of our country as a whole.

The activity of the Academy has led us to some very interesting research work, for instance in the field of archeology, the results of which it would be important for us to make known to the scientific world. With this aim in view we have launched this publication, with the technical collaboration of the Italian National Academy of Sciences, known as The Forty, which has ancient traditions of scientific research and a serious desire to collaborate with the developing countries in the fields of science and technology. We highly appreciate the assistance given to us in this respect by the Academy of the Forty.

Finally, we hope that this publication, which for the present will be on a yearly basis, will eventually appear more frequently, and that it will make better known our activities in the fields of science and technology, as well as constituting a bond of mutual understanding and friendship between the promoters of the arts and sciences all over the world.

Dr. MARYAN FARAH WARSAME

President

Somali Academy of Sciences and Arts

ARAR

Akadeemiyada Soomaaliyeed ee Cilmiga iyo Fanka waxaa la aasaasay 1979-kii, ujeedooyinkeedana, sida lagu muujiyey gogoldhigga wargeyskan, waxaa ka mid ah horumarinta cilmibaaridda Soomaaliyeed, soo ururinta qoraallada taariikhda iyo suuganta ee Soomaaliyeed, dersidda iyo kafaaiideysiga qiimaha faneed ee af-Soomaaliga oo dhaxalka dhaqan ee ummadda ah. Dhinaca culuunta dabiiciga ah waxaa fiiro gaar ah la siinayaa dersidda degaanka, gaar ahaan dhirta iyo ugaarta dalka, geoloojiyada, si loo ogaado khayraadka ku kaydsan badda iyo birrigaba guud ahaan.

Waxqabadkii ilaa hadda Akadeemiyadu samaysay waxaa ka soo baxay yididdiilo fiican oo na dhiirrigelisey, siiba dhinaca cilmi-baaridda arkeolojiyada, waxaanuna ku talo jirnaa in aannu aqoon-yahannada dunida u soo bandhigno natiijada wacan ee aannu filayno in laga gaari doono cilmi-baariddaas. Himiladaas awgeed baannu u aasaasaynaa wargeyskaan, iyada oo aannu dhinaca farsamada kala kaashanayno Akadeemiyada Qaranka Taliyaaniga ee Cilmiga lana yiraahdo Afartanka. Waxaa Akadeemiyadaas caado u ah iskaashiga iyo gargaarka ay u fidiso dalalka soo koraya, siiba dhinaca cilmi-baaridda sayniska iyo teknoolojiyada. Aad baannu u qaddarineynaa iskaashigaas iyo kaalmada ay noo geysatey Akadeemiyada Afartanku.

Ugu-dambaystii, waxaannu rajeyneynaa in wargeyskan oo sannadle ah marakan, soobixiddiisu intaas ka badato. Waxaa kale oo la rejeynayaa in wargeyskani door weyn ka qaato fidinta iyo baahinta waxqabadka Akadeemiyada Soomaaliyeed, siiba dhinacyada saynska iyo teknoolojiyada, isla markaasna sii xoojiyo xiriirka iyo iskaashiga aqoon-yahannada adduunka oo dhan.

Dr. MARYAN FARAH WARSAME

Guddoomiye (K/S)

Akadeemiyada Cilmiga Iyo Fanka

The Somali Academy of Sciences and Arts

In introducing ourselves to the international scientific world with this publication, I would like to describe briefly the history and objectives of the Somali Academy of Arts and Sciences.

Ever since the time of independence, there has been a growing concern in our country about the development of culture, though it was not until 1963 that the Department of Culture was established within the Ministry of Education.

The basic function of the department was to collect and record Somali oral traditions but it encountered serious difficulties in its work due to the lack of know-how and experience in these matters.

After the October Revolution of 1969, the department was strengthened through the hiring of additional and better qualified staff.

With the establishment of the Ministry of Culture and Higher Education in April 1973, the Department of Culture was transferred there and re-organized into the Academy of Culture — a newly established body.

The Academy of Culture was engaged in several activities. Among the foremost was the collection of Somali literature and the dissemination of the written Somali language.

Still, there was a growing realisation of the need to have an institution with a mandate to co-ordinate all researches on/in Somalia, not only in the topics covered by the Academy of Culture, but for all academic subjects. Consequently, the Academy of Sciences and Arts was established, officially, in 1978 and legalized by Law No. 9 of February 17th, 1979.

This new institution was given full authority over all kinds of research activities in the country, as can be understood in its diverse structure; consisting of the presidency, two institutes, six departments and sixteen sections. The two institutes are those of Sciences and Arts.

The Institute of Sciences is divided into the Department of Natural Sciences and the Department of Social Sciences, which are further divided into five sections.

The Institute of Arts consists of two departments: The Department of Language Development and the Department of Fine Arts. These departments are further divided into five sections.

In addition, there are two more departments, which come directly under the Presidency — the Department of Administration and the Department of Production and Documentation.

The Tasks of the Academy

The tasks of the Academy are as follows:

1. To strengthen, co-ordinate and supervise all research activities taking place in Somalia which can contribute to the over-all socio-economic development of the country.
2. To identify research areas and assess their theoretical and practical relevance to the needs and interests of the Somali people and the world in general.
3. To encourage research within Somalia and to contribute to the international research co-operation through the establishment of contacts with research institutes abroad.
4. To be responsible for the granting of research permissions for projects proposed by government agencies, individual scholars and by researchers from Somalia and abroad.
5. To act as advisor for the various government agencies in the implementation of their yearly development programmes in order to ensure that previously determined priorities in the social and economic development of the country are given due consideration.
6. To help provide funds and equipment to the various projects approved by the State Research Council.
7. To be responsible for the establishment of new research institutes whenever and wherever the need may arise.
8. To collect, interpret and print any material about Somalia and its people produced inside or outside the country and be responsible for its publication and distribution.
9. To train researchers and help develop scientific attitudes and values among the Somali people.
10. To collect and publish Somali literary works and contribute to the development of Somali literature.
11. To organize, co-ordinate and supervise the development of Somali Arts.
12. To conduct scientific analysis of the Somali language and to help direct its further development.
13. To conduct scientific analysis of Somali culture and help disseminate its positive aspects.

14. To establish closer co-operation links between the Academy and Somali National University in order to create a productive research environment.

15. To make the Somali people aware of recent scientific and technological gains and help them understand and make use of such gains.

16. To help the Somali people make better use of all their natural resources through the publication and dissemination of relevant scientific material.

Dr. AHMED ARTAN HANGHE
Dean, Institute of Arts
Somali Academy of Sciences and Arts

M.A. NOOR (*) and A.H. SHIRWA (**)

The Role of Demonstration Plots in Agricultural Extension in Somalia

BACKGROUND

Somalia is an agrarian country, that depends on crop and animal production. About 74% of its exports are derived from livestock, and bananas account for 16% [1]. The country does not produce enough food; however, there is great potential for increasing food production through expansion and intensification of agriculture.

Only about 10% of the cultivable land is under cultivation, and yields are limited by several factors that are not unsurmountable.

Despite lack of realization of the abovementioned potential, considerable effort has been made to create the institutions necessary, and to initiate some developmental steps. Ten years ago the country had no university, had one farmers' training centre, one experimental station and the extension service was inactive. In the past ten years the faculties of Agriculture, Veterinary and Animal Husbandry were established, agricultural research was strengthened in staff, number of locations and the amount of research carried out, and an important project is being initiated to strengthen agricultural extension. In animal production veterinary services have shown remarkable achievements; however, modern animal production is lacking and the hazards of drought are ever present and may result in 40-50% reduction in livestock numbers [2].

Agricultural instruction is carried out at the Faculty of Agriculture, Agricultural Secondary School and Farmers' Training Centres. The faculty comes under the university, while the latter two institutions as well as agricultural extension and research come under the Ministry of Agriculture.

(*) Professor in Plant Breeding at the Faculty of Agriculture, Somali National University.
(**) Lecturer in Agronomy at the Faculty of Agriculture, Somali National University.

This apparent isolation of the faculty was overcome by close cooperation with all agricultural institutions in both the crop and animal sectors, that would eventually utilize its graduates. Because of the recent establishment of the faculty it was necessary to draw upon the existing personnel and facilities of the Ministries of Agriculture and Livestock and their subordinate agencies. This cooperation gave the staff and the students resources that were indispensable to instruction and research; however, the role of the faculty in extension lagged behind because of the existing weakness of the service.

In 1978 the Faculty, the Agricultural Research Institute and Agricultural Extension Service initiated attempts to find out ways and means of extending to small farmers and cooperatives some of the research information that was relevant to increased production in the maize growing area of the Shabelle Valley.

After careful assessment of the local farming practices, and the available research data, it was decided to introduce a minimum package demonstration plots in farmers' and cooperative farmers. The package for maize consisted of:

1. Proper plant population, i.e., 40,000 plants/ha.
2. Planting in rows.
3. Application of nitrogen fertilizer at the rate of 50 Kg N₂/ha.
4. Stock borer control with granulated insecticide.
5. Irrigation was already available.
6. Improved relatively high yielding Compositae.

The area selected for demonstration was the maize growing villages of Audegle, Darsalam, and Mubarak, because this area has gravity irrigation, and farmers are hard working although they use traditional methods, and low yielding local variety. In early "Gu" season (April-June) a visit was made to select specific farms for demonstration. The location for two observation plots was selected by the staff of the Faculty and the Agricultural Research Institution and an understanding was reached with two farmers from Audegle and Darsalam respectively. These fields were selected because of their location within the traditional farming area, and they were located along the village roads.

It was agreed that the two farmers would perform all the work, but would be assisted with farrowing, fertilizer and granulated insecticide; and close supervision was to be carried out by a senior student at the faculty, who was given the task as his thesis.

In each location one hectare was selected and subdivided into half a hectare planted the "new" way and half a hectare planted the "traditional" way. Table 1 indicates the difference in the treatment of the two halves.

Results and Discussions

The farmer in Audegle could not follow the entire package, because the level of the river went down, and he had no irrigation. Therefore, he could not

TABLE 1 — Comparison of agricultural operations between new and traditional methods of maize cultivation.

<i>Traditional</i>	<i>New</i>
1. ploughing at depth of 25 cm.	ploughing at depth of 25 cm.
2. planting at random	spacing of 75 cm × 25 cm.
3. approximate plant population of 25,000 plants/ha	approximate plant population of 40,000 plants/ha
4. No fertilizer	50 Kg of N/ha
5. Local variety	Afgoi composite
6. No insecticide	granulate basudin for stock borer control
7. Weeding and irrigation as necessary	Weeding and irrigation as necessary.

give second irrigation and fertilizer application. However, the one in Darsalam could follow all instructions. The yields obtained were higher than comparable adjacent plots giving 5 times their yields in the case of Darsalam, and twice the yield in the case of Audegle, as shown in table 2 [3].

FIELD DAY

Prior to harvesting, a field day was organized for the farmers in the two villages at Darsalam. The owner of the Darsalam demonstration plot explained the details of the work input, and the result obtained was apparent to all.

COSTS AND BENEFITS OF THE PACKAGE

Information concerning the cost of the traditional and improved method were tabulated, and analyzed, and results are presented in Table 3.

TABLE 2 — Yield in q/ha in demonstration plots as compared to traditional plots.

<i>Method of Planting</i>	<i>Audegle plot</i>	<i>Darsalam plot</i>
Traditional	6	6
Improved package	14	30

TABLE 3

Source of Expenditure or Income	Cost/Benefit of Improved Method So. Shs.	Cost/Benefit of Traditional Method So. Shs.
Grain sale (15×75)	1,125 (3×75) =	225
Stock sale	30	20
Total income	1,155	245
<i>Cost of operations:</i>		
Land preparation	155	80
Planting	30	30
Irrigation	190	190
Fertilizer application	24	—
Thinning	8	8
Weeding	104	104
Insecticide application	6	—
Harvesting	50	50
<i>Cost of materials:</i>		
Urea	130	—
Diazinon	80	—
Seeds	80	96
Total cost	857	558
Total benefit or loss	+ 298	- 313

THE IMPACT OF THE DEMONSTRATIONS

In the following season "Der" (October-December) 1978 several farmers and a cooperative volunteered to plant portions of their fields according to the new methods.

In each instance an equivalent adjacent land was taken as control. The results of the above mentioned effort are presented in table 4.

It is apparent from the above mentioned data that doubling of the yield of maize in the Shabelle area is quite feasible with the introduction of a relatively limited number of agrotechniques and farm inputs.

TABLE 4 — Results of "Der" 1978.

Name of Farmer or Cooperative	Area Cultivated	Yield in q. in demonstration	Yield in q. adjacent field
Hassan Sh. Ali	2.0	41	17
Abdulkadir Ubeid	2.0	54	20
Osman Bue	2.0	56	25
Osman Moallim	0.5	11	4
Cooperative Onkod	10.0	200	95
Fais Moallim	1.0	21	8
Hassan Bosh	0.5	11	3
Abdullahi Omar	2.0	48	20
Total area	20.0	442	192
Average yield in q/ha		22.1	9.6

ON-GOING WORK

Additional demonstration plots are being carried out by the Faculty of Agriculture and the Agricultural Research Institute in the same area. In addition the Agricultural Extension and Farm Management Project is running more extensive work in both the Shabelle Valley and rainfed sorghum growing areas of the country.

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- [1] USAID., Somalia Agricultural Delivery System. Project Document, 1979.
- [2] NOOR M. A., *Agricultural Sector in Somalia - Structure and Performance*. National Seminar on Planning and Project Analysis, 1979.
- [3] SIAD A. M., *Il ruolo dei campi dimostrativi nello sviluppo dell'agricoltura somala*. Tesi di Laurea, Facoltà di Agraria, 1979.

KOOBID

Soomaaliya waa dal dhaqaalihiiisu ku dhisan yahay xoolo iyo beero.

In kastoo uu leeyahay awood kordhin ballaaran xagga tacabka, haddana ilaa maanta sooma saaro cunno ku filan.

Si wax soo saarka loo kordhiyo waxaa dalka laga abuuray hay'ado cusub sida Kulliyadda Beeraha, waxaana la ballaariyay kuwii horey u jiray sida Machadka Tijaabada Beeraha.

Gu' 1978dii waxa wadajir ahaan Kulliyadda Beeraha, Beerta Tijaabada ee Afgooye iyo Mashruuca Fidintu ugu sameeyeen beero tusaale Awdheegle, Dara-salaam iyo Mubaarak oo ku yaal gobolka Shabellaha Hoose.

Ujeeddada tusaalooyinkaas waxay ahaayeen in beeraleyda yaryar iyo Iskaasha-tooyinka la tuso sida loo kordhin karo ammadka galleyda haddii la hagaajiyo farsamada tacabka lana isticmaalo bacrin, sun iwm.

Tusaalooyinkii Gu' iyo Deyr 1978 waxay beeraleyda tuulooyinka aan kor ku soo sheegnay bareen sida ammadka galleyda loo kordhin karo haddii habka cusub ee tacbashada la raaco.

IBRAHIM M. ABYAN (*)

Towards a Responsible Development Administration

PART I

The phrase development administration is composed of two parts: development and administration. The term development by itself and in a social context conveys two notions: change and progress. Therefore, the idea of social development refers to conscious or unconscious innovative human behavior and tools toward new notions. The measurement of all these is the consequential manifestation of improved social conditions. Change in development implies change in man as an actor, and it is a process of rational change in the personality, activities, instruments, achievements and aspired social ends of the social man.

David Apter in his book, *The Politics of Modernisation*, states that the development behavior of society refers to the expansion of societal options, including innovations in technology, values, norms, approaches and objectives, with the final outcome of more satisfying conditions of life for society. Rational changes are the offshoot of rational choice, which itself ensues from self-conscious man or men. Those choices are the choices of changed cultural man who is set to break away from unsatisfying traditions. The new man discovers high moral freedom, superior social structures and more rewarding personal or group behavior. In other words, the new man is the one who motivates and designs social transformation from the stage of being traditional to the stage of modernity.

Traditional society so defined, in terms of social choice, is a society of irrational choices in comparison to modern society, which is rational. Due to the absence of rational choices, alternative options to traditional functions, norms, values and structures of traditional society are minimum. Can we characterise the traditional society? Of course scholars of social sciences, especially modern economists and anthropologists, have much to say on this point. One is impressed by Everette Hagan's observations in his work on *The Traditional State in Society*. According to him, the society is traditional if it is characterized by the following features:

(*) Director, Somali Institute of Development and Administration Management.

- 1) The behaviour of the individual is sanctioned by custom and not by law.
- 2) The social structure is hierarchically defined and justified by custom.
- 3) The individual position is inherited rather than achieved.
- 4) Economic productivity is low and primitive, using poor tools and methods.

Perhaps one can add a fifth phenomenal feature to the above list, namely, traditional society is resistant to change. Richard B. Ford has this to say:

“The past sets the folkways and mores, the habits and the normal attitudes which the present inherits. The past establishes institutions resistant to change” (1).

Max Weber, in discussing the social psychology inherent in world religions, defines traditionalism as follows:

“Traditionalism... shall refer to the psychic attitude set for the habitual work-day and to the belief in the everyday routine as an inviolable norm of conduct... Patriarchalism is by far the type of most domination... the system of inviolable norms is considered sacred” (2).

This statement is a testimony to three basic facts, two of which are raised by E. Hagan and the third by the writer; the hierarchical social structure and the sanctioning of norms by tradition are among the qualifying characteristics of traditionalism as it is correctly conceived by Hagan. The idea of resistance to change, which is explicit in the quoted words of Max Weber, supports the position of this writer, who only supplements the stand of Hagan and not necessarily refutes him. Max Weber has not mentioned the other two phenomena of traditionalism, namely, low productivity and low achievement orientation in the attitudes of traditional man and society. This is not because Max Weber is feeble minded not to note these obvious elements of the matter but because Max Weber with this exposition was dealing only with the whole social phenomena of traditionalism. Perhaps his very theory of Protestant ethic is an effort to define the westernisation of the contemporary world.

According to us, perception modernity with high production and superb achievements are associated with rationality and economic hardheadedness in Calvinism that have been the catalysts and the forging forces that enabled the west to break away from the poverty-stricken traditionalism that was chained to irrational norms and values of Catholicism Weber asserts:

“Protestants... have shown a special tendency to develop economic rationalism which cannot be observed to the same extent among Catholics either in one situation or in another. Thus, the principal explanation of this difference must be sought in the permanent intrinsic character of their religious beliefs...” (3).

(1) Ford Richard B., *Tradition and change*. Holt Rinehart & Winston, New York, 1968, p. 180.

(2) Greth and Mills, from Max Weber, Oxford University Press, 1958. p. 296.

(3) Zeitlin, Irving M., *The Ideology and the Development of Sociological Theory*, p. 125, Prentice Hall, Inc. Englewood Cliffs, New Jersey, 1968.

Having adopted Apter's concept of development, we have given the term sociological perspective. Similarly the other word, “Administration”, which is the other element of our theme “development administration”, must be tackled with a sociological frame of mind. Therefore, the word administration in simple language means the actions of the public authorities as agents serving society.

It contains the very message conveyed by the terms of bureaucracy as used by Max Weber. To him bureaucracy is the state and private authorities that manipulate and manage the socio-political and economic affairs of society.

Max Weber's bureaucracy as administration has the following functions:

- 1) Roles are defined by regulations.
- 2) The authority to command is distributed in a stable manner.
- 3) Privileges and personal rights for permanent fulfilment of roles; tasks are defined by law in a permanent manner while roles are bestowed upon persons who possess certain prerequisites as qualifications defined by law.

These three elements constitute public and lawful government, which he calls bureaucratic authority. In addition, Max Weber's administration includes what he calls bureaucratic management, which is private authorities that manage the economy of society. Thus, the public administration we have in mind includes private agents that have a role in shaping the living conditions of society. In other words, the parents who administer the family living, the herder who manages the affairs of his herd, the farmer who conducts the farm production and the man who runs FIAT Bar are part of the administrative machinery of Somalia that have to be constantly enhanced.

As a parenthesis it is perhaps useful to understand the word “public” which often goes with the word “administration”. The word public relates to all the citizenry of the nation and to their commonly shared interests. However, when used as a categorizing term of administration, it implies governmental activities excluding non-governmental services to the public.

Even in this context we can say the role of the modern state in the affairs of the nation has no limit as it has managerial voice of a kind, over everything and anything that affects the life, interests and welfare of the people. The private agents that manage the bulk of the national economy in the capitalist society of today are playing a mandatory role on behalf of the state. This is so as public administration is conditioned by the principle of public accountability. Its concern is over all the well-being of the nation. Its function includes both direct and indirect social costs and benefits. Hence, we can say the state, as an instrument or a servant of the people, is either the provider or supervisor of all goods and services that the nation gets.

However, this perception of public administration is a novelty that has emerged in our postwar era. Even the Max Weber version of administration, though it was reformative at its time, was a type of classical theory of public administration. Its reformative character lies in the sense that it advocates:

- a) the need for professionalisation of public administration and management;

- b) as a field of science, the promotion of its study as an independent discipline;
- c) the creation of adequate administrative machinery to maintain efficient control over the economy;
- d) systematic organisation based on discipline and authority fostering the welfare state, and
- e) the use of science and technology for the optimisation of efficiency aiming to achieve the organisation's targets.

This school, whose proponents, besides Max Weber, were Federick Taylor and Henry Fayl, is known as the Orthodox Theory school. It was the combination of Max Weber's theory of bureaucracy and the scientific management theories of the other two.

So far we have delivered the scientific conceptualisation of the two words, development and administration, separately and not as limbs of one phrase. As the whole is more than the sum of its parts, we shall be understating the meaning of the terms "Public Administration", if we do not pose what message it carries as a scientific expression. According to United Nations Document ST/ESA/SER.E/3 of 1975 ⁽⁴⁾, development administration has two aspects, which are the development of administration, and administration of development. The first part, development of administration, means the dynamic improvement of the society's administrative capability to engineer and administer development; the other feature, namely the administration of development, means just the management of development activities of society. Our concern, therefore, is reflective presentation of how to provide society with administrative capacity to administer development and the determination of what development is to be conducted by society.

Some relevant questions we can ask ourselves regarding this function are: Why improved national administrative capability? Why do we have administrative development? How can we measure development itself? The answers to all these questions lie in the functionality of the objectives of development. The original administrative capacity of society (ac) + increased administrative capacity (iac) will have the function (f) of development objectives (do); therefore, development administration (da) is original administrative capacity (ac) + increased administrative capacity (iac); the equation thus reads:

$$ac + iac = da = do$$

In terms of manpower input let us assume that ac was the original manpower of 100 doctors serving a population of 5 million people; iac is the number of new doctors to be procured in order to have medical staff that can serve the

⁽⁴⁾ U.N. Development administration; current approaches and trends in public administration for national development, C.P. York, 1975.

same population at the rate of 1 doctor per 10,000 citizens, the equation so formed reads:

$$ac + iac = \frac{5.000.000}{10,000} \text{ doctors}$$

$$100 = iac = 500 \text{ doctors (development administration).}$$

$$iac = 400 \text{ doctors.}$$

Therefore, development administration in terms of medical staff is 100 original doctors + 400 new doctors, which is 500 doctors. Administrative capacity for development, therefore, is its achieved objectives.

According to the Orthodox School of public administration like its counterpart in economics, developmental administration means one engaged in economic development. Moreover economic development or objective is defined by the increase in gross national product as per capita income. Using the classical economic

model, development may be expressed as $O = \frac{O}{I} \times I$, in the which O denotes output (gross national product), and I, input; $\frac{O}{I}$ is efficiency. Thus development means only economic development and is expressed in the increase of O (especially increase in O per capita).

This increase is achieved through administrative efficiency (O) and through input. The administrative capacity is the ability to mobilise input and increase output or their productivity. As such the national development administrative capacity is measurable in quantitative terms, the administrative muscle of a single institution or program is measurable concretely through the output/input ratios, often expressed as the rates of efficiency or productivity by the orthodox public administrators. As for the orthodox management of enterprises, the word profitability is often used to express output/input relationships. Therefore the three terms of efficiency, productivity and profitability are somewhat synonymous.

Since 1960 we have learned more and thus abandoned the fallacy of the orthodox school of administration. We have discovered that the sociological approach of modernity or development has to be adopted if development administration has to be comprehended through its ends. Thanks to the scholars of social change like David Apter, parsons and many others who have thrown new light on the subject have assured us that social development is an organic matter, in which administrative actions of change must touch almost all the numerous elements that constitute their social environment. Due to the rise of numerous new nations, all desirous of social change, all the classical causal theories of change were energetically reviewed. It was soon discovered by social scientists of various disciplines that neither market economy analysis nor the evolutionary perception of development of people like H. Spencer and Charles Horton Cooley

has been correct. It was equally realised that social change and modernity would not be determined from the sole perspective of one discipline of the social sciences such as political science, sociology, psychology, economics or cultural anthropology. Only with interdisciplinary critical reflections could the scholar render any meaning or interpretations to any changes in the social environment.

Messrs. Veil J. Smelser and James A. Davis in publishing the results of a panel by a team of leading American sociologists have the following to say:

“When a society is undergoing changes as complex as those involved in modernisation, the scholar cannot escape the fact that everything is changing at once, and he cannot escape the need to know something about other aspects of change in order to understand his own specific aspect” (5).

Development administration behavior may be consciously designed for the amelioration of a specific problem of society. For instance, the Ministry of Agriculture may sponsor programs for the increase of agricultural productivity. However, its social impact will not be revealed by the economic contributions of these programs to the well-being of the target group or even to the society as a whole. In addition to the economic impact they will have their changing effect on the political and social habits of the group. Let us suppose the projects were successful and the farmers were able to raise their food production. By eating more and better food the health conditions of the farming community are improved and thus not only child mortality is reduced but life expectancy is raised as well, for they are earning more money and now can buy more goods and services like education, transistor radios, better clothes and agricultural implements. In this process their material well-being is fostered, and so is their awareness and interaction with larger communities and political and administrative apparatuses. In other words, increased production has had multiplying effects. A young Pakistani scholar by the name of Abdul Ghafor (6) has vividly illustrated the point by using the following model which was the invention of Norman H. Nie in an article that first appeared in the *American Political Science Review* (7).

Economic Development	Changes in the social setting	Changes in the distribution of certain political attitudes	Increased political participation.
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Yet this pattern variable approach, in order to effect holistic system, transformation must not be overemphasised. The pattern variables are valid when

(5) Smelser J. & Davis J.A., (editors), *Sociology*, Prentice Hall, Englewood Cliffs, New Jersey, 1969, pp. 83-84.

(6) Ghafor Abdul, *Linkage between Development Administration and Political Development*. «Pakistan Administration Journal», XVI, 1979, n. 2, p. 48.

(7) LXIII, June 1969.

they are conserved as catalysts of structural changes of social wholes. For instance, Talcott Parsons’ formulations of the Marxist observation of the economic variable as the very agent for total social change including all structures, is unacceptable when he says:

“Marx, however, tended to treat socio-economic structures of capitalist enterprise as a single indivisible entity rather breaking it down analytically into a set of the distinct variables involved in it. It is this analytical breakdown which is, for the present purposes, the most distinctive feature of modern sociological analysis. It results in a modification of the Marxist view. The primary structural emphasis no longer falls on the theory of exploitation but rather on the structure of occupational roles” (8).

However, we must warn the readers of this paper that neither Ghafoor nor Marx are supporting reductionist economic theories; for instance Development Administration must not be astrayed by the Theory of Stages of Economic Growth of Professor Rostow. It has been already deadly attacked, and rightly so, by a host social scientists, among them Andre Gunder Frank and Bert F. Hoselitz. It is now almost an abandoned theory. The primary fault of this outlook is found in its disregard of the historical realities of the underdeveloped nation states. Objecting that they have gone through historical experience which is a carbon copy of that of developed western societies, Andre Gunder Frank has beautifully explained the problem in this manner:

“Rostow’s stages and thesis are incorrect primarily because they don’t correspond at all to the past and present reality of the underdeveloped countries whose development they are supposed to guide” (9).

One may argue that there are no hard and fast rules on the strategies of development administration to achieve effective modernisation of an underdeveloped society. On the other hand its social objectives are nothing more and nothing less than effective and holistic societal growth. Here we have purposely used the term effective as a development term, which is different from efficiency, which is more or less an economic term. Effective denotes meaningful and comprehensive social benefits, earned from developmental performance. The evaluation of effectiveness is much indicated by the nature and complexity of goals and objectives, as well as by the level of aggregation. If for example, the administrative policy aims at attaining (n) units in a single social benefit, effectiveness of (m) units may be one or more aggregates of social benefits. These social benefits, with which we can measure effectiveness of almost all developmental actions, may be constituted by some or all of economic goods: health, education, social status, political distribution, equitable distribution of national income, national integration,

(8) Parsons Talcott, *Social classes and class conflict in the light of the recent sociology theory*, in «Essays in Sociological theory», Rev. ed. Glencoe: The Free Press, 1954, p. 324.

(9) Frank Andre Gunder, *Sociology of Development and Under-development of Sociology*. Plute Press, 1961, p. 19.

public security and political independence. Comparative study of the following table is a good illustration of the point under discussion:

	<i>Indonesia 1978</i>	<i>Indonesia 1979</i>
1. Per capita income	\$ 6.23 bln.	\$ 6.25 bln.
2. Health life expectancy	47.5 years	47.8 years
3. Pop. per hospital bed	1,549	1,500
4. Pop. per physician	19,364	19,200
5. Infant Mortality (per 1,000)	125	110
6. Literacy	60%	65%
7. School age in school	32%	36%
8. No. of students per teacher	91	91

The first column is what was actually mentioned in the World Almanac of 1978. But the second column is a projected estimate of the life conditions of the people and the total increase in the output of national performance, which is the increased in rate of effectiveness of Indonesia in 1979.

Let us now take definite cases of national outputs and compare them in developmental context. The first test case is between Cuba and Brazil, while the second case is between Iran and Sri-Lanka.

CASE I

	<i>Cuba 1979</i>	<i>Brazil 1979</i>
1. Gross national product	\$ 5.8 bln.	\$ 144.92 bln.
2. Per capita income	\$ 570	\$ 1,239
3. Imports	\$ 40.7 bln.	\$ 554 m.
4. Exports	\$ 3.57 bln.	\$ 637 m.
5. Television sets	595,000	8,650,000
6. Radios	1,805,000	6,275,000
7. Telephones	289,000	3,987,072
8. Deaths (per 1000)	20.7	37.1
9. Natural pop. increase	1.53%	8.8%
10. Pop. per hospital bed	230	264
11. Pop. per physician	941	1,646
12. Life expectancy	71.8 fem., 68.5 m.	57.61 fem., 61.10 m.
13. Infant mortality (per 1,000)	28.9	94
14. Literacy	83%	68%
15. School age in school	70%	50%
16. Students per teacher	28	43

Comparing the development stage of Cuba and Brazil as illustrated by the above tables, the Cuban development is superior, in spite of the fact that the per capita income of Brazil is almost twice that of Cuba. This is because the social benefits that Cuba earns from her rational performance is distinctly higher than the other case. The rate of death, child mortality and life expectancy all imply that the people in general are better fed, sheltered and fostered than their counterparts in Brazil.

The Cubans do not necessarily spend more money on their food, homes and child care. But apparently the difference is the function of relatively excellent management in these areas; the superb educational and medical services of Cuba are due to the Cuban political administration concept: that man is the best agent for change and the focal point of development. Add to all these the socialist character of Cuban development; following the tenets of the Marxist school, in Cuba growth has raised productivity and fair distribution of the national income as well. This development management of their public life has been justly distributing the national cake to cover all and every one. The welfare of all citizens, poor and rich without exception, is a cardinal principle to determine who gets what.

On the other hand, the administrative system of Brazil is an orthodox type of public administration and still believes that development is the increment in the national gross domestic product; it has no moral concern as to where the new wealth should go. Capital accumulation and the increased rate of exploitation under the name of profit shape the normal code of the political and managerial elite. This point has been tacitly stated in the World Almanac. Income maldistribution remained unaffected by economic growth and a return of inflation (46% in 1976) aggravated malnutrition, which affected 40% of the population⁽¹⁰⁾.

Take the case of Iran and Sri-Lanka and we get a more persuasive case that the income developmental administration approach is a question of healthy redistribution of income for holistic social benefits rather than per capita income.

CASE II

	<i>Sri-Lanka</i>	<i>Iran</i>
1. Gross national product	\$ 2.99 bln.	\$ 66.4 bln.
2. Per capita income	\$ 214	\$ 1,529
3. Imports	\$ 701 m.	\$ 14,07
4. Exports	\$ 774 m.	\$ 24.25 bln.
5. National budget	\$ 650.09	\$ 31.07 bln.
6. Radios in use	505,000	781,537
7. Telephones in use	72,000	

(10) The World Almanac, Newspaper Enterprise Association Inc., New York, p. 521.

8. Life expectancy	64.8 m., 66.9 f.	50.7 m., 51.3 f.
9. Deaths (per 1,000)	7.7	15.6
10. Pop. per hospital bed	333	728
11. Pop. per physician	3,813	2,649
12. Infant mortality	45.1	139
13. Literacy	84%	37%
14. School age in school	47%	56%

Sri-Lanka is a poverty-stricken country as illustrated by her domestic products and per capita income. On the other hand, Iran is fairly wealthy, if we base our thinking on the national earnings. Nonetheless, Sri-Lanka is a more developed country than Iran. The indices of life expectancy and child mortality are explicit manifestations of human development. Why not? Isn't the aim of all human strife to avoid death and lengthen one's span of life? Isn't per capita income or gross national income the only means for man to have satisfactory living conditions? What has brought the difference is that Sri-Lanka has a good sense of social welfare that assures the individual a good basic education if he/she wants to learn, fairer distribution of income and the provision of more effective public health service. The fact that child mortality is lower in Sri-Lanka than in relatively rich Iran leads us to conclude that more mothers in Sri-Lanka are better educated than their counterparts in Iran.

The comparative study of the societies of Iran, Brazil, Sri-Lanka and Cuba demonstrates that social equity and income redistribution are features of development administration. Development programs like the multibillion-dollar projects that Iran signed in 1974 with France, which included nuclear energy plants, the Iranian purchase of 25% interest in Western Germany's Krupp International, Iran's loan of \$ 1.2 billion to Britain in 1975 and her agreement to purchase \$ 2.5 billion of goods and services from the United States are modern methods of anti-development; instead of development they are a dissipating mechanism of national resources; their benefits are not reaching the poor and thus not solving genuine social need. Therefore, in development administration, all planners and evaluators of projects of development must start with the conviction that the poor are the target group of all these endeavors.

In the modern world the key agent for development is the government. The very people who have disappointed the poor masses of Brazil and Iran were their government authorities, the politicians and administrators. This leads us to another aspect of development administration. That is development must be conceived as the center of politics. This is so because it has unique capabilities and collective responsibilities. For instance, in the developing world it is only the political system that can collect the necessary information to acquire the overall view of the economic and social picture of society.

It is only the government that can allocate the scarce resources of the country

for the purpose of development. The people of new nations are putting unprecedented pressure on their governments; the rising expectations for desirable, economic advancement are cornering their government to act. Even in the industrial developed countries, governments are encountering new popular challenges due to the economic crisis which seems to be threatening the fabric of the contemporary world. The energy crisis, inflation, the new and bitter realisation that almost all conventional basic raw materials for this technological civilisation are finite, the ghostly threat of atomic war disaster and the new fearless struggles for equality against the domination of colonisation, race, sex, religion and class are all causes for people to make relentless demands on their governments.

Consequently, humanity at large, headed by its political actors, is on the verge of calamity. In Paris one intellectual from Denmark alarmed this writer by saying, "We have no future to tell you. See all these forms of fanaticism that are threatening our daily life. How can you avoid a nuclear Third World War? How can you avoid the approaching and not far off shortages of food and energy crisis?". He continued marshalling all sorts of quotations and statistical data to support his case. One could be easily convinced that he did not have unwavering faith in the infinite potentialities of man. On the other hand, it needs so much effort to demonstrate that our salvation is in the hands of development administration, an arm of the political authorities. Then the first question that comes to our mind is: what is to be done by the political actors to remedy the existing social miseries and to deter oncoming catastrophes?

So far, we have made a conceptual survey in the language of development administration. Furthermore, the scope and the approach for public administration to take, in order to function as an effective instrument for change, have been charted. What has not yet been examined is the purpose of capacitating and dynamising public administration if it has to meet developmental needs of the uneasy world of the future.

Any political system that wishes to survive has to generate development administration that can overcome these frightening issues. Some of the old institutions of administration have to be modified while new ones have to be created. New inputs in the form of human and material resources and strategies must be invested in the new administrative machinery. Among other things, the following measures must be taken for the construction of the development administration of the future:

1. The creation of necessary institutions for better administration.
2. Education and training for human development.
3. Democratic politics and politicised administration.

Dhisidda maamul horumarineed oo xil kas ah

Warqadan waxaan ugu tala galnay in caqliyad iyo aragti maamul ku soo gelino dhaqanka Soomaaliyeed ee badawga ah. Ummadda Soomaaliyeed caado uma lahayn maamul ururiya awooda bulshoweynteeda oo u habeysan inuu siiyo karti ka saraysa mida uu qabsan karo qoysku ama beesha yari. 1960 Dawladii dhalatay ayaa ugu horeeyey maamul siyaasadeed, oo looga fadhiyo inuu siiyo isbedel horumarineed beesha oo dhan, sidaa awgeed qoraalkan waa mia doonaaya in wacayi cusub iyo karti qaran oo dawladdimo ku dhisan. Wuxuu sahan u sameynayaa aragtiyooyinka culimada reer galbeedka ee wax ka qora ilbixinta iyo kobcinta kartida maamul ee dawladdaha dalalka saddexaad, wuxuuna qeexayaa inaan horumarka maamul ee dalalka soo koraya ayna soo raaci karin jidadkii uu soo maray maamulkii lagu dhisay ilbaxnimada reer galbeedka.

Warqadanu waxay kala saaraysaa dhaqanka bulsho ee badawga ah iyo ka ilbaxa ah, iyadoo xiganeysa culumada qaarkood ayay ku tilmaameysa dhaqanka badawga ah ee bulsho mid leh sifooyinka soo socda:

- 1) Macaamilada qofka waxaa xalaaleeya ama xaraameeya caado; mid ku dhisan ma aha sharci maamul dawladeed.
- 2) Kala sareynta bulshadeed waa mid ku dhisan caado; laguma kala sareeyo sida ay kala sareeyaan mas'uuliyada xafiis ee ee la kala hayo sharcina lagu kala qeexin.
- 3) Darajada qofku uu ku leeyahay bulshada dhexdeeda waa mid la kala dhaxlaa ama loo dhashaa ee ma aha mid ka dhalatay kartida iyo wixtarka qofku uu u leeyahay bulshada.
- 4) Wax soo saarka dhaqaale waa mid hooseeya badawna ah; habka iyo qalabka wax soo saarkuna waa kuwo liita.
- 5) Dhaqanka badawga ihi sida ka bulshada Soomaaliyeed waa midaan u dabacsaneyn isbedelka oo ku qabsanaya caqliga iyo cilmiga.

Dhaqanka bulshada ilbaxa ahi waxa bartilmaameed u ah waxyaabihii laga waayey deegaanka bulshada badawga sida:

- 1) Mucaamilada bulshada waxa guud ahaan xalaal iyo xaaraan u kala

saaraya sharciyo ay bulshadu sameysato ilaalintoodana u xil saaran yakay maamulka dowladnimo.

- 2) Awodda kala sareynta maamulka dawladda waa mid ay sharci ahaan qeexeen xafiisyada dawladdu.
- 3) Kala sareynta afraadada bulshada dhexdeeda waa mid ku dhisan waxqabadka iyo qiimaha uu qof waliba u leeyahay bulshada.
- 4) Dhaqanka wax soo saarku waa mid sareeya oo ilbax ah adeegsanayana habab iyo qalab casri ah.
- 5) Bulshada ilbaxa ihi waa mid u debeansan waxna ku qabsata fikrado iyo tiknaloojiyado casri ah.

Si dhaqanka badawga ah aynu geedi horumarineed u gaarsiinno waxaynu u baahan nahay inaynu caqliyano, casriyeyno, inagoo isticmaalayno horumarka sayniska maamulkeena dawladdimo.

Midaa waxaynu kala mid noqon karnaa bulsho kasta oo u feydatay casriyeynta dhaqankeeda dhaqaale, bulshadeed iyo siyaasadeed, hase yeeshee, maamulka aynu horumarkeena ku raadinaynaa waa inuu yeeshaa baabaco gaar ahaaneed oo lagaga garan karo jidka iyo tabaha uu doorto.

Ka duwashanaantaas maamulkeena horumarineed waxaa lagama maarmaan ka dhigay dhaqankeena, deegaankeena dabecadeed iyo hantida aynu ku maal galin karno horumarinta bulshada ayaa ka duwanaan kara waxa yaala dal kasta oo kale, sidaa awgeed maamulka horumarineed ay Soomaaliya u baahan tahay waa mid muuqaalkiisa gaarka ah yeelan kara marka laga eego:

- 1) Qaabkiisa.
- 2) Falsafadiisa.
- 3) Sharciyadiisa iyo hababkiisa hawlqabad.
- 4) Kartida iyo barbaarinta laga rabo Qawaadirta Maamulka.

Maamulka horumarineed ee Soomaaliya u baahan tahay ma noqon karo mid kordhin kara dhaqaalaha dalka oo kaliya.

Taa micnaheedu waxa weeye kobcinta wax soo saarka dhaqaale ee bulshada ama koriinshaha daqliga, qofkasta ma tilmaami karaayo horumarinta bulshada ee looga rabo bulshada saxa ah.

Maamulka saxa ihi waa inuu noqdaa mid leh shuruudaha soo socda:

- 1) Mid hubiya in bulshadu sidii ugu sareysey u kordhineyso wax soo saarkooda, iyadoo ka faa'iideysanaysa qayraadkeeda dabiiciga, awoodda maaliyadeed, tiknaloojiyadeed, bulshadeed iyo siyaasadeedaba.
- 2) Inay hubiso in bulshadu wax soo saarkeeda si caadilnimo ah uga wada faa'iideysato iyadoo loo hubinaayo in la wada daryeelo baahida aasaasiga ah ee qof kasta.

Iyadoo maareynta wax soo saarka ay intiisa badan dibadda ka tahay hawl qabadka dowladda, ayaa maamulka dawlada xil gaar ah ka saaran yahay

gacan siinta ururada qoysaska iyo afraadda u qeybsan wax soo saarka, iyadoo hubinaysa in hawl qabadkoodu noqdo mid koritaan joogto ah siinaaya wax soosaarkooda doora 2aad ee si gaar ah ama keli ahaana ee maamulka dawladu ku leeyahay wax soosaarka waa hubinta in bulshadu ka wada faa'iideysato nicmada iyo qeyraadka soo kordhay.

Sidaa awgeed qoraalkanu waa faaqidaad inoo sheegeysa inaynu u baahan nahay maamulkeeda, oo isbedela ina kuna rida karti aynu kaga bixi karno dib u dhaca dhaqan dhaqaale bulshadeed iyo siyaasadeedba, taasuna waxay dooneysaa inaynu helno tubtii saxa ahayd ee aynu ku toosinlahayn himilooyinka horumarineed ee aynu higsaneyno.

ABDULLAHI S. ELMI (*)

Plants in Traditional and Modern Medicine

INTRODUCTION

A great number of people, especially in rural areas, have no access to modern medicine and its well developed technology. Furthermore, even when modern medical care is available many people actually seek help from herbalists and other healers whom they trust better.

To provide adequate and accessible health care facilities to everybody in the community, is an important goal for all countries. This goal is not easy to achieve, especially for developing countries where the physical, financial and manpower resources are very limited. Herbal medicine therefore plays a vital role in the health care of our communities, even though, unfortunately it is still discredited as medicine especially in medical circles.

The first known treatise on materia medica was written by Dioscorides, who was a physician serving under Nero. In this work 600 medicinal plants were listed [1]. In China there is an old and well developed tradition about medicinal plants. Li Che-Chen (1518-1593) spent 30 years to compile a Chinese pharmacopea "Pen T'sao" (the origin of herbs). In this pharmacopea the use of chaulmoogra against leprosy is mentioned.

Scientifically based isolation and production of active principles from plants started only in the early 19th century. Morphine was extracted from opium in 1806. The following decades witnessed the discovery of a formidable set of drugs from plants; emetine from ipecacuanha, colchicine, veratrine, strychnine, codeine, belladonna, digitaline, quinine, atropine, theobromine and cocaine are some of these.

Research into medicinal plants has yielded in recent years some of the most important drugs of our era. In this respect, reserpine, vincristine and vinblastine are worthy of mention. Reserpine, isolated from *Rauwolfia serpentina* has remarkable hypotensive and neuroleptic properties. Vincristine and vinblastine, which are among the drugs of choice against leukemia and Hodgkin's disease, are ex-

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tracted from *Catharanthus roseus* whose fine flowers are so familiar in Somalia.

Oubain or strofantin-K, an extremely important cardiac glycoside, has been extracted from the popular arrow poison "waabaayo" so often used by Somali hunters.

Plants are now increasingly used as raw material and precursors for the industrial production of vitamins, hormones, etc.

All this does not mean that by using plants one can dispense with synthetic drugs which indeed have powerful and immediate effect and still remain the main tool for therapy. What we want to stress is that therapy with plants and plant products has high credentials and is not just medicine for the "poor".

Developing countries should aim at the integration of traditional medicine with modern medicine. This fact is of the utmost importance in all aspects of health, particularly in the development of effective primary health care programmes.

THE ROLE OF W.H.O.

The World Health Organization is playing a prominent role in the promotion and development of traditional medicine. The thirtieth World Health Assembly in 1977 adopted a resolution (WHA 30.49) urging interested governments to give "adequate importance to the utilization of their traditional systems of medicine with appropriate regulations as suited to their national health systems". The support by WHO for traditional medicine has encouraged many countries to re-examine the positive values of traditional medicine and its role in health care development.

Some of the proposed activities of WHO in the development of traditional medicine are:

1) Collaboration with Member States in formulating national policies on traditional medicine, as WHO has done in other fields such as those of drug, cancer and communicable diseases control.

2) Information transfer among countries: this could be achieved by consultative meetings, seminars, newsletters and other literature, etc.

3) Promotion of technical cooperation among developing countries (TCDC) and between developed and developing countries [2].

Resolution WHA 31.33 calls for attention to the importance of medicinal plants in the health care systems of developing countries. Resolutions WHA 32.42 and 29.72 endorse the use of traditional practitioners in PHC programmes [3].

A WHO Expert Committee suggested the following steps for the integration of traditional medicine into primary health care:

1) Giving recognition to traditional practitioners and incorporating them into community development programmes.

2) Retraining traditional practitioners for appropriate use in PHC.

3) Acquainting professional health personnel and students of the modern system with the principles of traditional medicine in order to promote dialogue, communication, mutual understanding and eventual integration.

4) Educating the community to believe that the provision of traditional remedies is not second rate medicine.

5) Cataloguing all medicinal plants in a country or region and disseminating the information thus compiled.

6) Retaining the traditional forms and names of prescriptions whenever traditional medicines are adopted for use in PHC and carrying out relevant research into traditional systems of medicine [2].

THE AFRICAN SITUATION

At what stage is research on medicinal plants in Africa? Briefly, we can say that great efforts are being made in the whole continent to promote research in this field of science.

The Organization of African Unity's Scientific, Technical and Research Commission (OAU/STRC) has established an Inter-African Committee on African Medicinal Plants and Traditional Medicine. This committee coordinates the research on medicinal plants in member states. It organizes symposia on African medicinal plants and African pharmacopea and publishes a Newsletter on this subject.

The OAU/STRC is financing research in medicinal plants in several countries of the Continent.

Some countries are well off in the research. Egypt has since 1952 a pharmacopea which has now been translated into English and French. The pharmacopea includes plant drugs and can serve as a springboard for the proposed African Pharmacopea when more countries have established their own pharmacopea. The Malagasy Republic with an index of about 20,000 medicinal plants and Nigeria have also achieved good results in this field of research.

RESEARCH ON MEDICINAL PLANTS IN SOMALIA

A) USE OF PLANTS

Treatment with plants and other natural products is a well developed branch of the Somali traditional medicine. A survey on the prevalence of traditional medical practices was carried out by the Division of Pharmacology of the Faculty of Medicine in 1978. The survey was conducted in some villages along Shabeelle River, a district of Mogadishu and the prevalently former nomad-inhabited district of Kurtunwaarey. 400 people were interviewed. The results pointed out that 73% of respondents made use of herbs. A second survey covering four villages in

Afgooye and the district of Wadajir in Mogadishu, conducted in 1981, confirmed the above data.

Several hundred plants are used in Somali traditional medicine. The confidence of the population in the ability of traditional herbalists is quite great.

Use of plants is not devoid of spiritual ryths. In the Somali traditional medicine, there is a great respect for the plant. Healers of the interriverine area do not consider the plant as a simple physical entity. The greater part of herbalists feel that the effect of a plant depends not only on its power, but also on the relationship between the collector and the plant itself.

Traditional herbalists are allowed to practice their profession without particular restrictions.

Putting medicinal plants to better use has always been a matter of concern in Somalia. However, systematic research into medicinal plants started only recently. The delay is due to the fact that until very recently the country lacked the institutions and scientific manpower capable of undertaking such research.

The flora of Somalia which presents marked differences with those of neighbouring countries is not yet completely studied. Not much has been published on indigenous systems of use of medicinal plants. Because acquisition of knowledge by traditional healers comes through oral transmission, by apprenticeship and initiation, native medicine is very often surrounded by great secrecy.

B) RESEARCH ACTIVITIES

A programme of research into medicinal plants has been established by the Somali National University in 1978. Investigation on plants used in traditional medicine is also one of the main lines of research of the Somali Academy of Sciences and Arts (SOMAC).

The aims of the research stated in 1978 read as follows:

- a) to foster the accomplishment of better use of medicinal plants lending to it the necessary scientific support;
- b) to examine the credits of traditional use of medicinal plants in the light of modern science so as to encourage the use of therapeutically effective plants and discourage harmful ones;
- c) to promote the integration of proven valuable knowledge in herbal and modern medicine;
- d) to stimulate and cooperate in the realization of Somali traditional pharmacopea;
- e) to reduce the country's drug bill;
- f) to help in creating a national pharmaceutical industry;
- g) to aid in the therapeutic, economic and commercial exploitation of medicinal plants by promoting their use, culture and exportation.

The research is a multidisciplinary enterprise requiring the contributions of botanists, chemists, pharmacologists and clinicians. At Somali National University the research on medicinal plants involves the Department of Pharmacology, Faculty of Medicine, the Department of Organic Chemistry, Faculty of Industrial Chemistry, and the Department of Botany, at the Faculty of Agriculture.

The research can be divided into the following phases;

- A. Inventory of botanical identification of plants used in traditional medicine;
- B. Literature survey of the identified plants;
- C. Verification of efficacy of selected plants;
- D. Safety/toxicity assessment of active plants;
- E. Isolation, identification and/or structure elucidation of active principles;
- F. In-depth pharmacological and toxicological evaluation of isolated active substances;
- G. Production of drugs based on plants containing therapeutically valuable substances.

The plants to investigate are not chosen at random but according to clearly set priorities. These priorities are linked to: i) the prevalence of the use of the plant among the population; ii) the prevalence of the disease for which the plant is used. Also plants used for diseases for which there are not good cures in modern medicine are given due consideration.

The research enjoys support from the Swedish Agency for Research and Cooperation with Developing Countries (SAREC), the Somali Academy of Sciences and Arts, the Department of Cooperation and Development of the Italian Ministry of Foreign Affairs and the University of Leiden in the Netherlands. The Department of Pharmacognosy in Uppsala is deeply engaged in research and in the training of Somali researchers. Also the Department of Pharmacognosy in Leiden is assisting our programme with training and research on antimicrobial activity of Somali medicinal plants. Training for Somali researchers of our programme has also been carried out at the Department of Clinical Pharmacology, Huddinge (Sweden), the University of Messina (Italy), the Istituto Superiore di Sanità, Rome (Italy), and the Department of Systematic Botany, Uppsala (Sweden).

C) SUMMARY OF RESEARCH RESULTS

1. *Inventory and botanical identification*

Information on the use of hundreds of plants has been collected by interviewing traditional herbalists. Many plant collecting expeditions (twice with the participation of Swedish experts) have been made. Many plants have been identified, others still await proper recognition.

Samples of collected plants have been sent to internationally important herbaria.

2. Literature survey

Literature information has been collected for a relevant number of plants. Lists of names (with synonyms) of identified plants were sent to the WHO Collaborating Centre for Traditional Medicine at the University of Illinois, Chicago, USA, for search through the NAPRALERT computer file. Up to now printouts covering 71 species have been obtained from the above Centre.

3. Experimental verification of the efficacy of plants

Antimicrobial activity - Extracts of seventy different plants, used in traditional medicine for treatment of various infections, have been screened for antimicrobial activity. Activity was found in 70% of the extracts. Good antibacterial activity was specially noted for extracts of the root of *Maerua subcordata*, *Adenia aculeata*, *Grewia villosa* and *Commiphora ancistrophora*.

Anti-inflammatory activity - Screening for anti-inflammatory activity, using various kinds of experimental oedema, has been performed on some plant extracts. *Sarcophyte piriei*, which is widely used as an anti-inflammatory drug in traditional medicine, showed good activity on acute and chronic inflammations in experimental animals. Positive effects have also been observed on human subjects treated by traditional healers.

Antiparasitic activity - Extracts of leaves and roots of *Vernonia mogadoxensis* have shown activity against some ectoparasites. The plant is used by nomads for treatment of infection by skin parasites in animals.

Guinea pig ileum test for pharmacological activity - 15 aqueous plant extracts have been tested for their ability to cause contractions or to inhibit artificially induced contractions of the isolated guinea pig ileum. Both effects are indicators of a variety of pharmacological effects. At a dose of 2 mg/ml (bath volume) 6 of the extracts (40%) showed a contracting effect corresponding to or exceeding 50% of the contraction caused by a standard dose of histamine (200 ng/ml). Eight extracts (53%) caused inhibition of artificially induced contractions by at least 30% compared to the contractions of the ileum before addition of the sample. 1 extract (7%) had lower effects or no effect at all. These studies have been performed in Uppsala, Department of Pharmacognosy.

4. Safety/toxicity assessment of active plants

The shortage of experimental animals due to the inadequacy of space, cages and proper diet, prevented us from performing consistent toxicological studies. We have carried out acute and chronic toxicological studies on two plants. One of them is *Calotropis procera*. The oil of this plant is used as a tonic and antirheumatic. Since a literature source stated that the flowers of this plant had a necrotic effect on the testicles of gerbils treated for one month, we decided to check if such effect was present also in the oil.

We carried out a chronic toxicological study which lasted for two months using rats. At the end the animals were sacrificed and autopsy performed. Hystopathological examinations on testicles and other organs did not show any alterations.

Toxicity studies on *Sarcophyte piriei* also showed that the plant is quite safe.

We also succeeded to show the hazards of another plant which is used in traditional medicine. The plant in question is *Croton Machrostachys*. The seeds of this plant are used (raw or toasted) for their purgative activity. It is worth mentioning that purgatives are widely used in Somalia. The activity of this plant is in the oil. *C. Machrostachys* reached standards not reached by any other local plant. An agency was producing the oil exploiting it commercially for use as a purgative. Since other species of the same genera (e.g. *C. Tiliu*) are cocarcinogenic, we suspected that it might contain phorbol diesters, which are responsible for the toxic effect. The chemical analysis soon carried out by our group showed the presence of the toxic compounds. This was enough to stop the production of the oil. The country is rich in effective and safe purgatives.

5. Isolation, identification and/or structure elucidation of active principles

Antimicrobial activity has been found both experimentally and clinically for extracts of the roots of *Maerua subcordata*. This activity has been shown to be due to the presence of quaternary ammonium compounds (tetramethylammonium chloride and nitrate). The presence of such compounds should discourage the internal use of extracts of this plant.

Roots of *Suaeda monoica* have been shown to contain histamine, which is responsible for the smooth muscle contracting effect. The presence of this compound should discourage the use in traditional medicine of this plant as a remedy for asthma.

From aqueous extracts the stem bark of *Acacia tortilis* ("qurac", in Somali) two 1,3-diaryl-propan-2-ol derivatives called quracol A and B, have been isolated and their structure determined. The quracols are new compounds, hitherto not found in plants. Compounds of this type are known only from a few plants and no studies of their pharmacological properties have been performed. The quracols inhibit contractions of the guinea pig ileum by histamine and might thus have antihistaminic effect. This is interesting with regard to the use of the plant in traditional medicine as a remedy for asthma. Also other compounds with alleged antihistamine activity have been found in the extract.

The aerial parts of *Senra incana* have been shown to contain coniferylaldehyde, sinapaldehyde and syringaldehyde with inhibiting activity on the isolated guinea pig ileum. The plant also contains other substances with this activity, as well as substances with contracting effects.

Compounds with activity on the isolated guinea pig ileum have also been isolated from *Euphorbia robrochi*, *Ficus sycomorus*, and *Maerua denhartiorum*. The structure elucidation of these compounds is in progress.

6. Studies on Khat

Catha edulis Forsk, better known as khat or qat, is a plant widely used in East Africa and South-West Asia for its stimulating activity. We carried out a lot of studies and published quite a number of scientific papers.

In spite of the fact that: i) khat leaves have been used for centuries, ii) the plant was first identified as early as 1770 by the Swedish botanist Peter Forskal and iii) the first chemical studies started in late 19th century, the drug had never been well characterized and the effects on chewers had never been scientifically determined.

Because hundreds of thousands of Somalis daily used this drug, we gave top priority to it.

We carried out epidemiological studies intended to assess the prevalence of the phenomenon among the Somali population and in relation to sex, education, occupation, etc. We have also studied the motivations of the use and pinpointed the effects on the individual and the society. Our studies yielded some of the most important scientific information on this plant and extend on animal studies and medical and socio-economic consequences of khat chewing. We described the amphetamine-like effects of khat, how it induces tolerance, its physiological and psychological effects. All these have been obtained following human trials and it is important to point out here that our group is the only one in the world who has run clinical studies. In the last four years we have published over 20 papers on this plant.

7. Clinical evaluation of efficacy and safety

Clinical pharmacological evaluations can be performed only on plants that, after elaborate preclinical studies, prove to be active and safe. This usually takes a long time. However, besides animal studies, we have another important possibility of getting information on the efficacy and toxicity of plants: the observation by trained physicians of healers while they practice their profession. A practising healer is in fact among the staff of the Department of Pharmacology. The activity of this healer is followed by one of our physicians. These observations yielded valuable information on several plants. Particularly interesting were the indications for efficacy of *Maerua subcordata* (antibacterial) and *Sarcophyte piriei* (anti-inflammatory). *S. piriei*, which is widely used in traditional medicine, proved also to be quite safe in animal studies and during observation of healers' practice. We will start very soon controlled clinical trials on this plant.

In the near future new experimental models will be added to those already in use in our Department. Screening methods for study of cytotoxic activity and activity against amoebas are currently under study.

Toxicological studies will be carried out on some plants with proven antimicrobial activity.

Results from these evaluations will be of great importance for legislation of healers' practice and information on the safe use will be brought to the know-

ledge of healers in the country. In this connection, a course or workshop for healers from various districts is scheduled to be organized in the spring of 1986. This will be the first of its kind, and it will also be the first time when the research — which has been working on the information gathered from healers — will give back to them information on important scientific evidence, which may justify or encourage the use of certain plants and discourage the use of inactive or harmful plants. Audio-visual aid materials will be used. This and other workshops, which will follow, will generate discussions that may lead to a better use of plants especially in primary health care, and enact better legislation of healers' activities in Somalia. Particularly important information, especially on toxicity of plants, will get proper dissemination through the media.

SUGGESTIONS AND CONCLUSION

Since the start of the colonial era, there has been only one official medicine in Somalia: modern medicine or biomedicine. The pre-existing ethnomedicine was completely ignored or sometimes banned.

In spite of the many difficulties, traditional medicine continues to flourish. Not few of those who ridicule traditional medicine, are themselves clients of some traditional medical practitioner.

Unfortunately, the Ministry of Health's good initiatives of 1973/74 concerning the evaluation of healers and certification of good ones, were not followed by the necessary steps of deeper evaluation and training of healers.

We feel it is urgent to adopt a policy aimed at throwing light on Somali traditional medicine and the "jungle" of healers, especially traditional herbalists and bonesetters. We suggest the following:

A) Encouragement of research

The Ministries of Health and Higher Education should make efforts to strengthen research into medicinal plants. Research is the only way of taking the maximum advantage of positive practices and avoiding the harmful ones.

B) Assessment of the number and types of healers of the country

This would come out by taking a census or by calling healers to evaluation tests. All healers who take part in these tests would be recorded.

C) Upgrading of healers, knowledge and techniques

Organization of short training courses in order to upgrade healers' knowledge and techniques, would be of great benefit for both healers and the community. In these courses they would learn among other things some notions of sanitation, environmental hygiene, prevention, nutrition, etc. Successive courses

with slightly different content and information on new results about activity and toxicity of plants (and useful also as a refresher) would follow. Healers give great importance to certificates awarded by official bodies. People would regard them as recognition and this would lead to even better consideration of healers within the community.

D) *Registration of healers*

All healers should be registered and subdivided into categories and specialities. Types and number of courses attended should be taken into due consideration. This would stimulate healers to attend the more courses they can. Charlatans would gradually give up or be discarded during the process.

Healers trained in this way and left free to operate in the community would be the best fabric for primary health care. They would operate in their natural environment with increased knowledge and avoiding harmful practices and toxic useless plants.

For poor countries, such policy would probably be a short-cut for *the goal* of health care for all by the Year 2000.

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ABDULLAHI S. ELM I

Kaalinta dhirtu kaga jirto daawada hiddaha iyo midda casriga

Muwaadiniin badan, gaar ahaan dadka ku nool miyiga, si caadi ah uma helaan daawooyinka casriga ah. Waxaa kaloo dhacda in dad badani oo awood u leh in ay helaan daawada casriga ay doortaan daawada hiddaha taasoo ay si wayn u aaminsanyihiin.

Daawada hiddaha waxay soo jirtay tan iyo inti aadamigu uu dunida ku abuurnaa. Daawooyin badan oo ka mid ah kuwa ugu fiican, waxaa laga soo saara dhirta.

Waxaa la aaminsanyahay in haddi dhirta lagu sameeyo baaritaan ballaaran oo qota dheer laga soo saari laha daawooyin manaafacaad badan u leh bani aadamka.

Waddamada qaarkood, sida Jamhuuriyadda Dadka ee Shiinaha iyo Hindiya, si wayn bay ugu hormareen daawada hiddaha ilaa ay sameeyeen jaamacado u gaar ah habkaasi daawo.

Hay'adda Caafimaaadka Adduunka (WHO) tix gelin wayn bay siisaa daawada hiddaha, gaar ahaan dhirta daawada, waxayna dawlada, gaar ahaan kuwa soo koraya kula talisay in ay horay u mariyaan cilmi baarista iyo ka faa'iidaydaha daawada hiddaha.

Ururka Midowga Afrika kaalin wayn buu ka qaataa sare u qaadidda baarista iyo isticmaalka dhirta daawada.

Dalkeenna markaan eegno, isticmaalka dhirta waa wax soo jiraa ah. Dadka soomaalida ah aqoon wanaagsan bay u leeyihiin dhirta, aad baana loo isticmaalaa miyi iyo magaalaba.

Baarista dhirta daawada goor dhow bay ka bilaabatay dalkeenna. Cilmi baarista waxay ka socota Jaamacadda Ummadda halkaasoo oo ay iska kaashadaan kulliyadaha Caafimaaadka, Kimika iyo Beeraha.

Barnaamijka Baarista Dhirta Daawada ee Jaamacadda wuxuu taageero xag tababar iyo qalabeenba ka hela Akadeemiyada Cilmiga, Fanka iyo Suugaanta, Hay'adda Iswiiden u qaabilsan iskaashiga cilmi baarista (SAREC), dalka Talyaaniga, iyo Jaamacadda Leiden ee dalka Holland.

Cilmi baarista waxay isku taxallujisaa ururinta iyo aqoonsashada dhirta, ururinta macluumaadka ka jira dhirtaasi, hubinta iyo tijaabada wax tarka lagu

sheego dhir walba, baadi goobka dhibaatooyinka ay geeduhu u leeyihiin dadka, kala saaridda iskudhisyada ku jira geed walba iyo gooni soocidda iskudhisyada manfaca leh.

Muddadi koobnayd ay cilmi baarista soo jirtay natiijooyin dhiirri gelin leh ayaa la gaaray. Dhirti badnayd oo la baaray waxaa laga helay konton geed oo leh fal jeermi tir, kuwa kalana waxaa daboolka laga qaaday in ay leeyihiin falal kala ah: ka hor tagid holac, ka hor tagid deris ku nool, wax ka beddelid dhaqdhaqaaqa muruqyada jilicsan. Dhir kale waxaa la xaqiijiyay in ay ku jirto sun. Iskudhisyo dhowr ah, oo qaar ay yihiin kuwa aan horay loogu arkin dhir kale, baa gooni loo soocay hab dhiskoodana la caddeeyay. Natiijooyinkaani marki dib loo gaarsiiyo dhiryagaannada Soomaliyeed waxay si wayn ugu faa'iidayn doonaan dadweynaha.

Waxaan ku talinaynaa in: i) cilmi baarista la dhiirri geliyo, ii) tira koob lagu sameeyo cucudda iyo noocyada daawo-yaqaannada Soomaliyeed, iii) sare loo qaado aqoonta cilmi iyo awoodda farsamo ee daawo-yaqaannada hiddaha, iyo iv) la diiwaan geliyo daawo-yaqaannada hiddaha oo dhan.

Seminaarro oo macluumaad badan loogu gudbinaayo daawo-yaqaannada hiddaha waxay wax wayn ka beddeli lahayd daryeelka caafimaadka dadweynaha, gaar ahaan daryeelka caafimaadka aasaasiga ah (« PHC »).

Hawsha noocaani ah oo lagu dhaqaaqo, lana xoojiyo waxay wax wayn ka gaysan lahayd himilada ah gaaritaanka daryeel caafimaad ee dadka oo dhan Sannadka 2000.

AHMED ARTAN HANGHE (*)

Research Into the Somali Language

Introduction

The Somali language is considered to be one of the most homogeneous languages existing today in eastern Africa, being spoken or understood by about five million people. The great range of vocabulary and its etymological aspects, as well as the syntactical and grammatical structures of modern Somali, all indicate the considerable richness of the language; and because of these factors it is reasonable to place Somali alongside the most ancient native languages of the African continent.

The present brief survey seeks to underline three specific aspects of the problems concerning written Somali:

- 1) historico-cultural background viewed as the basis upon which the national languages, or what researchers often termed common Somali, developed over the preceding centuries;
- 2) the history of the research on written Somali conducted by various Somali, as well as foreign scholars during the last half century or so, and
- 3) measures taken by the Revolutionary Somali Government in writing the Somali language.

There is a certain historical evidence which suggests the existence of an ancient script system for writing the Somali language. This evidence is in the form of the numerous inscriptions and rock-paintings on cave-walls, on granite rocks, old coins, etc., which are found to this day in various parts of the country.

Some important sites where such finds exist are as follows:

- | | | |
|-------------------|---|--|
| a) God-xardhane | } | in Laas-caanood district in northeastern Somalia |
| b) Qubiyaale | | |
| c) Hilayo | } | in Laas-qoray district in northeastern Somalia |
| d) Karin heeggane | | |
| e) Dhalanle | | |

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Although it is difficult to determine what caused the ancient Somali system of writing, if, indeed, there was such a system, to disappear altogether and also for how long it flourished, etc., it is highly probable that the encroachment of the diverse foreign cultures that interacted for many centuries in this part of Africa had greatly contributed to its decline and disappearance.

As generations succeeded one another and people acquired better technical and scientific knowledge, there were constant reforms and improvements resulting from the new social conditions of the age. This process might have been repeated over and over again in subsequent periods in the history of the Somalilands, until the old system of Somalian script finally died out and was completely forgotten by later generations.

Another probable cause for the disappearance of the script system of a given people might be the pressure exerted upon it by another culture. An example of such a process is the ancient cultures of the Indian subcontinent, which for many centuries spread far and wide in almost all the eastern countries of Asia, superseding or assimilating the native cultures of these lands. Alien cultures that came to the Somali peninsula (Persian, Indian, Arabian, etc.), however, had in them new vitality and they found a receptive mind in the Somalian environment. The Somali language belongs to the Cushitic family of languages and is more akin to the Galla (Oromo), Boni, Rendinle, Beja languages in respect to its grammatical structure. Moreover, it has a considerable percentage (20% nearly) of Arabic terms in its modern vocabulary, which greatly enriched the language. Such terms are chiefly employed in the religious and commercial spheres of the Somali social life, since the Horn of Africa acted, as we pointed out earlier, as crossroads for diverse foreign cultures, for political and commercial intercourse over the centuries.

The Arabic Script

The Arabic script, which came along with Islam in the 9th-10th centuries A.D., was used in the Somalilands in later ages, and was confined chiefly to the religious sphere. Its greatest disadvantage, which prevented it from being adopted for writing the Somali language, was that it is a vowel-poor system, and could not, therefore, fully render the vowel-rich Somali phonetic system.

There are three vowel-points in the Arabic alphabet, which are defined as: "FADHA, KASRA, DHUMMA". A special feature of the Arabic language is that words could be written and identified without the vowels. This is impossible in the case of the Somali language, and it was one of the main reasons why the systems based on the Arabic script, such as Mr. Makahil's (of which we shall say more presently) proved unsatisfactory for writing Somali and were abandoned in the end by most of its exponents.

The Latin script, which was brought to the Somalilands by the European colonial powers was no more widely spread in the country during the colonial era, than was the Arabic orthography. Both systems, as well as the cultures they represented, practically remained foreign to the Somali masses.

Aw Barkhadle (Yusuf el-Kawneyn c. 11th century A.D.)

He was one of the first missionaries who propagated Islamic religion in northern Somalilands about the 9th-10th century A.D.

The title "Aw" is the Somali equivalent of the Arabic term "Sheikh", and it is prefixed to the personal name of a man learned in the Islamic religion.

Aw Barkhadle devised a phonetic system for writing Somali, mainly for use in his religious teaching. This system, which is still used in Koranic schools, or "Madarasa", is known as ALIF LA KOR DHEBEY.

Basically the system is founded on the three-vowel points of the Arabic language, that is, the "FADHA, KASRA, DHUMMA". The Aw Barkhadle system was an important pioneering work, but it was obviously inadequate for the vowel-rich Somali language, which has at least twenty different vowel points. Due to this phonetic difficulty, and also to the fact that the Somalis were a Cushitic-speaking race outside the Arabic linguistic culture, Aw Barkhadle's literacy campaigns could not then have the desired effect in the Somalilands.

Research into Somali by Somali Scholars

For the last half century or so various Somali scholars had invented orthographic systems for writing their mother-tongue. We shall mention here the more prominent among these scholars.

1. *The Osmania Script by Cismaan Keenadiid.* During the twenties of the present century, inspired by the great patriotic struggle led by the famous Somali nationalist, Sayid Maxamed Cabdille Xasan, a well-known Somali scholar-educator named Cismaan Keenadiid invented a new system of script for the Somali language, which, having lost its ancient script, was then spoken orally. This new script came to be known as "Cismaaniya" after the inventor, became popular and spread widely particularly in the fifties and sixties.

Suspicious of all kinds of progressive ideas, the colonial administration at once banned the Cismaaniya script together with all the literature connected with it.

In the fifties and sixties the Cismaaniya script was revived mainly by nationalist groups and it spread far and wide in many parts of the country. The gifted inventor also had to his credit several valuable works: textbooks on the Somali language and other scientific subjects, such as geography, astronomy, treatises on Somali philosophy, etc. The scholar drew much from the inexhaustible treasure-house of the ancient Somali cultures, which he earnestly strove to revive to their glorious past.

Cismaaniya was a system based upon the principles of Somali phonetic characteristics. The main disadvantage was that it needed new printing machinery and typewriter keyboards, which would be costly.

Mr. Cismaan used in his alphabet system the minimal pair technique, by

which words were written in the same way but different in pronunciation and meaning: e.g. mar (to pass through), maar (copper metal, rust). Armstrong E. also adopted this method in her research into Somali years later.

2. *The Boramo Writing by Xaaji Cabdiraxmaan* (1920, s). About the same period as Cismaan Keenadiid, another Somali scholar, Mr. Xaaji Cabdiraxmaan, the Qadhi, or religious judge, of the northwestern town of Boramo, invented a script system known as the "Boramo writing". This system was identical to Mr. Keenadiid's Cismaaniya script, in that both systems were written from left to right; were broken or isolated as the letters had no cursive forms, etc. For these and other defects the Boramo writing script attracted no great interest in linguistic circles in the country.

3. *Maxamed Cabdi Makaahiil* (1930, s). He was one of the early researchers and produced several publications, consisting of primers, letter-writing texts, etc., for writing Somali in the 1930 s in Aden, south Yemen. Mr. Makaahiil continued the earlier research work into Somali, begun previously by his cousin, Maxamed Cabdille Mayal, when the latter died. Mr. Makaahiil's better known work was entitled: "Insha-ul-Makatabati A'sriyati fi Luqati sumaliyati", published by Al-munshi Gulam Muhammad, Aden, A.H. 1351, printed in Bombay.

4. *Shire Jaamac Axmed* (1966). Mr. Shire is a well known collector of Somali oral literature. In 1965 he published a collection of works on oral literature entitled "Gabayo, Maah-maah iyo Sheekooyin" (Poems, Proverbs and Short Stories). And in 1966-7 he also edited a journal called "Ifitiinka Aqoonta" (Light of Education) containing oral tradition material.

Mr. Shire was one of those Somali scholars who opted for the Latin alphabet for writing Somali and had used it in his various publications, with certain modifications. An important innovation introduced by Mr. Shire was the consonants CH to represent the sound X. At a later stage X was adopted in the new Somali alphabet instead of CH (appended to this article is the new Somali Alphabet).

Mr. Shire's orthographic system was an important pioneering work which had been crowned with success when in 1972 it was adopted, with certain modifications, as the official script for writing the Somali language.

5. *Xaaji Muuse Ismaaciil Galaal*. The late Xaaji Muuse Galaal is recognized as the greatest authority on Somali oral literature and devoted many years to the collection and preservation of Somali oral literature, especially in such fields as collection of the works of leading poets, reciting poetry in both its old and modern styles; prose stories relating to Somali traditions and customs; collection of proverbs and sayings, the theatrical arts, etc.

Research into the Somali Language by Foreign Scholars

A number of foreign scholars have also carried out valuable research work into the Somali language, prominent among whom are:

6. *King, J.S.* devised as early as 1887 (see bibliography) an alphabet system for writing Somali based on the Arabic characters, which was almost identical to Mr. Mayal's method.

7. *Armstrong Liliat E* carried out research into Somali in the early 1930 s in London with the cooperation of two Somalis: Cismaan Dubad of Hargeysa district and Xaaji Faarax of Berbera. Her research resulted in the publication of an interesting article entitled "The Phonetic Structure of Somali", using the minimal pair technique (e.g. *bar* - to teach; *baar* - to search or to look for), as did Cismaan Keenadiid, the author of the Cismaaniya script.

8. *Bell, C.R.V.* was the Director of Education in the Somaliland Protectorate in 1948. He wrote an important book (see the bibliography) on the structure of the Somali language.

9. *Andrzejewski, B.W.* is an authority on Somali cultural life and has extensively studied the Somali language and literature. Professor Andrzejewski wrote many articles, booklets, etc., in these fields and he co-authored several publications with well-known scholars, like the late Muuse Xaaji Galaal and I.M. Lewis.

Attempts to Write Somali by the ex-Colonial Administrations of Somalia

The British administration of the ex-Somaliland Protectorate and the trusteeship Italian administration of Somalia made a number of attempts in different periods to establish a script for the Somali language. The more noteworthy of these endeavors are summarized as follows:

a) in 1938 a project was initiated in the former Somaliland Protectorate whereby it was proposed to adopt the Roman characters in writing the Somali language. A religious disturbance erupted in the country in protest against the use of the Roman orthography for Somali, as religious leaders thought wrongly that the European administrators aimed at replacing the Arabic script used in religious teaching, along with its Islamic culture, with the Latin alphabet. The whole scheme was abandoned subsequently;

b) in 1948-1952 the department of education of the protectorate initiated a research project for writing Somali, and Prof. B.W. Andrzejewski and the late Xaaji Muuse Galaal were assigned to conduct the necessary research work. The two scholars submitted to the government their report entitled "Recommendations for a Somali Orthography" (see Horn of Africa, July/September 1978, vol. I, no. 3);

c) in 1955 an inter-governmental (the protectorate government of Somaliland and the trusteeship Italian administration of Somalia) conference was held in Mogadiscio. A modified version of the Roman alphabet was recommended by the conference for writing Somali. Again, due to politico-religious opposition existing in the country, the recommendation of the language conference made no headway.

d) in 1966 a UNESCO three-man linguistic commission, including Prof. Andrzejewski, visited Somalia to advise the Somali government. Several orthography systems invented by Somali scholars were put before the commission for examination. The Terms of reference for the commission were not to select one particular script, but to comment on the advantages and disadvantages of all the script systems presented. This the experts had done and they offered their advice to the government on the technical side of the problem.

The Adoption of the New Somali Orthography

For many years the Somali people were very anxious to see their mother-tongue written in an alphabet system of their choice, which suited the characteristics of the language. That popular desire could not, however, materialize during the colonial period, since it was never in the interest of the colonialists to enable the Somali people to acquire the scientific and technical knowledge they so badly needed to improve their lives.

The problem of writing Somali could not be resolved satisfactorily during the post-independence period, mainly because it got hopelessly entangled in divergent political and semi-religious sentiments. This perennial question had to wait for its resolution until the emergence in Somalia of a government with more radical social programmes.

Article A. 4 of The Internal Policy of the First Charter of the October 1969 Revolution states: "To constitute, with appropriate and adequate measure the writing of the Somali language".

In January 1971 the Somali language commission comprising of 21 members was appointed, whose terms of reference were: "the preparation of textbooks in Somali for the elementary government schools". The commission was to avoid discussing the controversial question of what script system was to be adopted for writing the Somali language. The Supreme Revolutionary Council was to come to a final decision on that question in due course.

In August 1972 the commission finalized its work, and on October 21, the third anniversary of the Revolution, the President of the Somali Democratic Republic, Comrade Major-General, Maxamed Siyaad Barre, announced the official adoption of the Latin orthography for writing the Somali language, which on that historic day became the official language of the nation.

The Advantages of the Latin Script

Although minor modifications had to be made to the Latin orthography before adopting it for writing Somali, it still had certain obvious advantages over the other script systems. Some of these advantages were as follows:

1) it could be printed and typed with the machines used for Italian or English languages;

2) it would not put a burden on students learning such foreign languages as Italian, English, etc.;

3) it would enable Somali scientists to follow the progress of scientific and technical progress as advanced nations use the Latin script.

It could be safely said that these and other reasons weighed the balance heavily in favour of the Latin orthography for writing Somali.

THE SOMALI ALPHABET

Vowel Sounds

The basic vowel sounds in the new Somali alphabet are twenty, of which ten are back and ten are fronted vowels; they are:

<i>Vowel sound</i>		<i>standard word</i>	
short, back vowel	1 a	bar	teach
	2 e	dheh	say
	3 i	dir	send
	4 o	tol	sew
	5 u	lug	leg
short, front vowel	6 a	cab	drink
	7 e	deg	alight
	8 i	rid	put in
	9 o	rog	turn
	10 u	gub	burn
long, back vowel	11 aa	baal	side
	12 ee	beer	garden
	13 ii	liin	lime
	14 oo	soor	food
	15 uu	tuur	throw
long, front vowel	16 aa	raad	footprint
	17 ee	geel	camels
	18 ii	wiil	boy
	19 oo	doog	green grass
	20 uu	guud	top

Consonant sounds

A minimum of twenty consonant sounds are distinguished in the common Somali dialect, which are as follows:

Symbol	Standard	Word	Phonetic Description	
1	b	beer	garden	voiced labial plosive
2	t	tus	show	unvoiced dental plosive
3	j	jiid	pull	voiced palato-alveolar affricate
4	x	xig	dwarf sisal	(Arabic ز), unvoiced pharyngeal fricative
5	kh	khalaas	finish	(Arabic خ), unvoiced velar fricative
6	d	dab	fire	voiced dental plosive
7	r	roob	rain	alveolar rolled lingual
8	s	sug	wait	unvoiced alveolar fricative
9	dh	dheer	tall	voiced post-alveolar plosive
10	sh	shid	light	unvoiced palato-alveolar
11	c	caano	milk	(Arabic ع), voiced pharyngeal fricative
12	g	gee	take	voiced velar plosive
13	f	fur	open	unvoiced labio-dental fricative
14	q	qaad	take, pick up	(Arabic ق), uvular plosive
15	k	keen	bring	unvoiced velar plosive
16	l	lug	leg	alveolar lateral
17	m	mid	one	labio-nasal
18	n	san	nose	alveolar nasal
19	w	kuwan	these	bi-labial glide
20	y	yeel	do	palatal glide

The Glottal Stop (hamza - Arabic /'/)

The "hamza" does not stand alone as an independent phonetic sound, but it is placed over a vowel to show the glottalization or a sudden escape of air in the human glottis, when pronouncing Somali vowels, e.g., la', without.

Language Policy and Programmes

Since the adoption in 1972 of the new Somali script the activities of the Language Development Department of the Somali Academy of Sciences and Arts were primarily geared to the standardization of the Somali language (basic vocabulary) which has now become, as was stated earlier, the official language of the country, the medium of instruction and administration. Specific research work during the last few years was centered in the following areas:

1) the standardization of the modern Somali vocabulary, which resulted in the publication of a booklet on administrative and technical terms;

2) the compilation of 4 dictionaries, 1 scientific and technical and 3 ordinary ones; one of them has already been published and the other three are in process of compilation. Two of these dictionaries would be bilingual, one Somali-Italian; one Somali-Arabic; the other two are mono-lingual.

3) an elementary Somali grammar book has already been published; its second edition is awaiting further correction and publication. In the years ahead it is intended to continue and further develop the on-going research work in connection with the standardization of Somali grammar, especially in the field of morphology, phonetics, syntax, etc. It is also planned to finalize work regarding the publication of the proposed dictionaries, the terminology booklet, as well as the second edition of the grammar text mentioned under items 1 and 3 above;

4) the initiation of the necessary research work concerning the various Somali dialects, in order to study their linguistic relationships; as well as their literary background, with the aim of producing a book on this subject.

"The Somali experiments", writes Prof. Andrzejewski, a prominent scholar on Somali cultural life, "represent an unusual measure of success in the development and modernization of a national language, and it is obviously highly relevant to any discussion of language planning and reform in developing countries. It shows that if there is sufficient motivation and readiness to allocate the requisite human and economic resources, it is possible to transform a language which till recently had no official orthography into a tool of communication in national life and a vehicle of scientific and mathematical thought". (*Horn of Africa*, July/September 1978, vol. 1, no. 3).

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SOOKOOBID:

Af-Soomaaligu wuxuu ka mid yahay afafka maanta lagaga hadlo ee caanka ku ah Afrikada Bari, dadka ku hadla, ama dhegta ka yaqaan, waxaa lagu qiyaasay shan malyan ku dhowaad. Baahsanaanta ballaaran ee erayada iyo raad-raaca qotada dheer ee unkamiddooda, habsamida dhismaha weeraha iyo naxwaha af-Soomaaliga haatan lagu hadlo — arrimahaas oo idili waxay si cad u muujinayaan hodannimada afkaas. Sidaas awgeed baa la oran karaa af-Soomaaligu wuxuu ka mid yahay oo la barbar dhigi karaa afafka qadiinka ah ee qaaradda Afrika.

Maqaalkani wuxuu si kooban u guud marayaa, waxna uga iftiiminayaa saddex arrimood oo ku saabsan af-Soomaaliga iyo qoriddiisa, kuwaas oo ah:

1) gundhigga taariikheed iyo dhaqaneed ee afka qaranku, ama waxa cilmi-baareyaalku dhaaxa ku sheegaan Soomaali Weyne, ka soo unkamay qarniyadii tegey;

2) taariikhda cilmi-baaridda ku saabsan qoridda af-Soomaaliga ee ay sameeyeen aqoon-yahanno kala duwan ee Soomaali iyo shisheeyeba leh muddo nus-qarni ku dhow; iyo

3) tallaabooyinkii dawladda kacaanka ah ee Soomaaliyeed ka qaadday qoridda af-Soomaaliga.

AHMED ARTAN HANGHE (*)

Somali Folklore

Folklore is defined generally as the cultural traditions of a people handed down by word of mouth from generation to generation. All objects created by primitive people, which have either material or spiritual value, such as artifacts, popular dances, music, songs, tales, etc., are considered to be the elements that constitute folklore as a specific area of scientific enquiry. Folklore in fact never stops flourishing from the spring of the people's fancy. It also never stops changing its form and content as it flows from generation to generation. Whenever people choose to entertain themselves, or wish to record their historical experience they go back to the sources of their folkloric wealth and draw inspiration therefrom. Hence, one needs to study thoroughly the folklore of a given people, in order to understand their philosophy of life, their world outlook.

Somali folklore is exceptionally rich both in form and content, and it is in this field that the creative genius of the Somali people displays itself fully throughout the centuries. This fact in itself indicates the existence of an ancient civilization in the Somalilands, which enabled such a sizeable folklore literature to develop from time immemorial.

In our brief discussion we do not propose to cover the vast field of Somali folklore culture as a whole. That task would require a more profound study of the subject matter. Here we intend solely to consider the nature of some of the more popular Somali dances, which are one of the important fields of folklore study.

Somali Popular Dance

The outside world directly influences man in many ways — the seasons of the year, the elemental forces against which primitive man was powerless.

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Dancing is one of the forms by which man expressed his direct reaction to such natural phenomena.

Primitive man on the one hand was seized by fear of the destructive natural elements, such as earthquakes, lightning, floods, diseases, failure of crops, etc., and on the other he rejoiced in nature's blessings — abundant crops and the animals he hunted for food, which sustained his life on earth. Realizing how powerless he was against nature, man began to placate or appease imaginary deities or spirits created by his own fantasy, who he naively thought were manipulating these destructive forces of nature, and he bestowed lavish offerings on those gods who he believed were on his side. Thus the idea of "good" and "evil" grew in the primitive man's mind and for millennia the whole gamut of his social life revolved round this simple philosophy.

Before the "bad" spirits or gods, early man was prostrate and fearful, but before the "good" ones he was blissful. Man vividly portrayed these different human feelings of his through action — through dance. And that was the birth of dancing, a ritual action. Thus, hunting, harvesting, etc., were marked by special dances, honoring the "good" spirits supposedly assisting man in these undertakings; and other types of dances depicted the appeasement of the "bad" ones. Therefore in the life of primitive human society dancing was purely a ritualistic or religious act.

In ancient Greece, for instance, the dramatic art arose from the cult of Dionysos and from the great festivals connected with this mythological deity. The process was the same in all the ancient civilizations of the world. The mythological cults of Voodoo and Orisha gave birth to Nigerian and Dahomian folk dances, respectively. Only in later ages, on the long road of human civilization, did dancing become an autonomous art; and yet not quite so, for ritualistic elements could still be traced in the dances of almost all peoples.

The Somalis on the Horn of Africa could be considered as one of those African communities which, in spite of all sorts of external influences, were able to preserve the purity of their national cultures. Their language, literature, popular dances, etc., are today as purely African as they were throughout the ages. The Somali popular dance, along with the allied arts of song and music, is perhaps the field where the purity of the ancient national cultures had been fully preserved. The ritualistic element in the ancient dance of early man is distinctly traceable in Somalia's traditional dances today.

The currents and cross-currents of the various foreign cultures (mainly oriental) that were interacting on the Somali peninsula over the preceding centuries have, however, made a substantial difference in that native cultural background. The effect of this trend is chiefly noticeable today not only in Somali dances, but also in contemporary Somali music and folk songs. This resulted in working out a sort of cultural synthesis between the foreign and the native cultures, which enriched each other.

Two main types of folk dance are generally discernible in the Somalia of our times: a) the ritualistic dance and b) the recreational dance. To the first type

belong all those dances which have a ritualistic or religious significance, while those whose purpose is to entertain the audience come under the second group. Although the modern religions, both Islam and Christianity, discouraged and at times openly fought against the popular dance in this country, yet this great art could not be uprooted altogether from its native soil. In Somalia the traditional dance is preserved chiefly among the rural communities (the pastoralists, sedentary agriculturalists, etc.), where the national cultures as a whole have been, in our view, preserved in their purity. These sections of the people could, therefore, be reasonably considered today as carriers of the country's ancient cultural values.

The Ritualistic Dance

The ritualistic types of dances, as it was pointed out earlier, are generally meant to placate evil forces and spirits, diseases, failure of crops from the good earth, marauding wild animals, raiders who took from man his woman, goods, etc. Early man, because of his still limited scientific knowledge of nature, was then helpless against these mysterious powers, and he began to appease them, to gain their favor and succor. He danced in their honor, he offered sumptuous sacrifices (even in the form of human beings killed at the altar of the imaginary deity). Man made ceremonial obeisance to the sun, moon and stars, the sea, rivers, mountains, caves, forests, deserts, thunder, lightning, rain — to invite the good will of the manifold powers, or at least their neutrality. As an illustration of the ritualistic type of Somali folk dance we shall discuss here.

The 'Istaqfurow'

The Istaqfurow rituals are observed mainly in southern Somalia every year in or about the months of January-February. This is the time of the year when the northeast trade winds are blowing violently along the southern Somali coast of the Indian Ocean, causing storms and high seas in this part of the ocean. Sea voyage along the coast by local dhows practically ceases then for 3 to 4 months, until the strong winds calm down once more. Often much damage to property, as well as human life, is caused by these great storms and high tides that lash out on the shores, sinking vessels on the high seas, sweeping off hut-roofs, felling fruit trees and even sweeping people off their feet. Ancient man was, as we have already pointed out, powerless against such natural calamities and he thought naively that some cruel god was against him; hence, his appeasing the supposed deity.

Last year's Istaqfurow celebrations, as the writer observed, were proof enough that this was but the continuation of those ancient sacrificial rituals to appease the imaginary gods. The only difference was that the offerings given to the "good of the sea" were not human beings, as of old, but a hundred heads of selected goats and sheep. All these animals were brought one afternoon to the sea front as offerings to "the sea". Two men got hold of a fat ram, threw it to the ground

and pressed down while a third one slit its throat with a double-bladed knife. Another trio did the same and in a few minutes one hundred carcasses were strewn around and the sea instantly turned crimson with the hot blood of these hapless animals.

Great crowds watched this awesome spectacle, while many others danced, chanted and pronounced some mysterious formulae. On the faces of the younger onlookers were expressions of amazement and real fear, while those of the elderly assumed an air of solemnity. The butchers started to cut up the meat and carry it home. The propitiators believe that the god of the sea is now satisfied with the sniff of animal (in the ancient world it was human) blood and the winds and storms will calm down and the people will then live peacefully till the next Istaq-fuwow comes round the following year, when the ritual is again repeated.

The Recreational Dance

The social themes expressed through the performance of the dances in category b) above are practically limitless. In Somalia, as elsewhere in Africa, great occasions such as national festivals are invariably marked with dancing; thus the dance-square is the main centre of social recreation, where one can enjoy the priceless cultural heritage of his own people. Traditional dances are also staged on other important occasions, such as when the rains come, causing the revival of life in the arid Somali bush and savanna lands, where the nomads roam about with their numerous herds in search of fodder and water; or welcoming honored guests, etc. The people, young and old alike, go to the dance-square on such occasions, to enjoy themselves. The technique of performing each of these dance types differs in the various localities in Somalia where they are staged.

The 'Batar'

More popular recreational dances among the Somali pastoralists, is what usually distinguishes one type of dance from another. Before the dancers enter the dance-ring the crowds of spectators are pushed back, so as to make it wider for the ensuing performance. Then a male soloist (women also partake in singing and dancing in public) or chorus-master steps into the arena and opens the performance with the chanting: "hoobeyoi-hoobeeyo-hoobeeyoi". This string of repetitive sounds has no meaning at all; it only provides the soloist some word or a phrase to "hang on to" while reflecting upon what topic to introduce into the spectacle. Then the chorus responds, chanting in unison the refrain for "batar" dance: "ha-ha-ha-hoobeeyoi", which is loudly repeated at the end of every phrase or line of verse quoted by the soloist. The tempo of handclapping, footwork, chanting, etc., suddenly quickens, until the cadence reaches a deafening pitch.

The chorus is formed by two opposing rows of men and women facing each other in the dance-square, ringed off by throngs of spectators, all standing up and eagerly looking at the inner circle. Then all of a sudden a couple jumps into the

arena, and as handclapping and the foot-stamping provided by the chorus increases, they leap into the air, making graceful short jumps in unison, now facing or flanking each other, while airborne. The chanting, in which both sexes participate, a couple or two taking the arena alternately, has a specific refrain which is repeated by all in unison for a time, until the tone is changed and a new one picked up. This is frequently done, so as to avoid monotony of the chanting. One of the professional singers suddenly raises up his right hand, the chanting ceases at once and he or she pronounces a new song on a new theme. The singer quotes loudly the words of the new chant, and then the chorus repeats the same refrain: "ha-ha-ha hoobeeyoi" which does not change throughout the performance.

The rhythm of the handclapping in the dance types mentioned above goes something like: "ta-tam-ta-ta-tam", which is rendered in a rapid sequence by the chorus members. These dances, therefore, acquire specific melodies to which the handclapping, footwork, etc. are precisely synchronised, making the whole action a definite artistic composition.

The Batar or Sacab types of dances are staged in the countryside, as well as in urban areas, and they have great popularity since almost any social topic could be discussed through these dramatic spectacles. It is generally said that the Somalis are a nation of poets, and it seems the remark is by no means an exaggeration. There are numerous poets who enjoy considerable fame among the people. These professional singers form a part of the chorus, which also includes bystanders who only repeat the refrain "ha-ha-hoobeeyoi". The latter are rewarded for their labour in that they have a place within the arena, thus viewing the whole spectacle from such a vantage point. Otherwise, one has to struggle for a position among the throngs of spectators who constantly keep pushing and shoving one another for a place.

A poet-storyteller performing in these national dances often calls to mind the martial valor of his ancestors, the customs and traditions regulating all aspects of communal life, of the problems of wars and peace, etc. At marriage festivals the poet showers praise on the newlyweds, pointing out the graces of the bride, or the bravery of the groom; or he might pay tribute to the respective clans of the couple for raising such a fine young couple. The poet singer inspires the young boys and girls in the audience to choose their spouses from the respective clans or families to which the newlyweds belong. In other instances, the performer gives his philosophy of life to the young people who stand on the threshold of life, to choose one of two things:

waar ama wadaad noqo
oo weyso iyo kitaab sido
ama walasaqada iyo
wilgada tumo;

i.e., either you be a "wadaad", priest, possessing only the Koran and "weyso", vessel for ablution water; or else go for the "wilgo" and "walasaqo", two of the most vivacious types of popular dances among the Somali pastoralists.

At a “batar” or “sacab” performances a venomously humorous duel might develop between the sexes, where the supposed shortcomings of each of them is underscored — feminine inconstancy, the male’s wrong assumption of superiority over the fair sex, etc.

The participation of women in these national dances is in itself an indication of the important fact that Somali women, with the exception of a few urbanized communities in the coastal areas affected by Asiatic cultures, do not at all practice the ultra-conservative oriental usage of “purda” or “parda”, seclusion of women from almost all public life. Thanks to the existence of extraordinarily rich ancient native cultures where the sexes enjoyed full equality, the Somalis were able to escape from such harmful influence, in spite of their drawing much value from oriental cultures (chiefly Arabian, Persian, Indian, etc.) over the preceding centuries. In the dance-square, as in any other social field, Somali women on the whole enjoyed civic equality with their menfolk.

In conclusion, we would like to emphasize the point here, that Somali folklore constitutes the historico-cultural source from which the Somali people constantly draw inspiration and strength. Unfortunately this vast spiritual resource has not yet been fully utilized in our country for the benefit of not only our people, but also for the rest of the world.

In the foregoing brief discussion we merely touched upon only one aspect of Somali folklore: Somali folk dancing, taking as illustrations two of its various types. Our brevity in this respect was due to the limited space available, rather than to lack of the essential information on this wide subject. Nevertheless, we hope that the interested reader will find in what we have said some useful information on Somali folklore.

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AXMED CARTAN XAANGE

Somali Folklore

SOOKOBID — Dhaqanka dadweynaha (folklore) waxaa lagu tilmaamaa in uu yahay dhaxal sooyaal ah ee facba facii ka horreeyey ka soo gaarey, orah iyo qoraal ahaanna la isugu gudbiyey. Sida suugaanta qoran oo kale dhaqanka dadweynaha waxaa la isugu gudbin karaa hab maanso ama hadal qoran.

Dhaqanka soomaaliyeed wuxuu hodan ka yahay qaab iyo ujeeddadiisaba, wuxuuna dhaqankaasi muujinayaa garaadka heerka sare ah ee dadka soomaaliyeed gaareen qarniyo badan ee tegey. Arrintaasi waxay isla markaas tusaysaa in Geeska Afrika lahaan jirey ilbaxnimo filweyn, taas oo suurogelisey in suugaan dhaqaneed aan qorayn ee hodan ahi ka dhalato ilbaxnimadaas qadiinka ah, qarniyo badan soo jirtey oo horuumar sare gaartey.

Faallahayagan gaaban waxaannu ku soo qaadaynaa cayaaraha dhaqanka (folkdance) oo keli ah, kuwaas oo ah xubin madhaafaan ah ee ka mid ah dhaxalka dhaqaneed ee dadweynaha soomaaliyeed.

SALIM H. ALIO (*)

Adenovirus Precipitating Antibodies in Somali Cattle Bovine Serum

Summary

Adenovirus precipitating antibodies have been found in some cattle from several regions of Somalia.

Serological studies on 756 bovine sera showed that adenovirus precipitating antibodies are evident, the percentage of positive sera being 25%.

Introduction

The virologic and seroepidemiologic studies which have been made up to now have proved that the bovine adenovirus are frequently the cause of some infections in the respiratory and digestive system (Darbyshire, 1968), and the conjunctive mucus (Wilcox, 1969). Numerous latent infection cases have also been recorded (Rondhuis, 1968). All the strains which have been isolated till now are classified in 9 serotypes, among which the etiological agent of "weak calf syndrome" which is of particular importance caused the 50th serotype of bovine adenovirus (Coria *et al.*, 1975).

Now work has been done to evaluate the presence of bovine adenoviruses in domestic animal species of Somalia. The study presented here will discuss the first seroepidemiological tests carried out by the Faculty of Veterinary Medicine (Somali National University).

Methods and materials

Antigen: It is known that adenovirus isolated from mammals and humans possesses a common group of antigens. Therefore for the preparation of the laboratory antigen, any kind of adenovirus can be utilized.

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For our examination we have utilized an antigen prepared with bovine adenovirus strain type 1 cultivated first in calf kidney cells and then adapted to Aubek Cell (Auburn University bovine embryo kidney) (Mani *et al.*, 1976).

On the 5th passage, when the cytopathic effect is evident, the superficial concerned cells are collected, centrifugated to 3000 r.p.m. for 10 minutes and the cellular sedimentation taken in equal parts with 1-1.2 Trichlos-Trifluoraethane (Genetron 113). The floating was treated in refrigerating environment with ultra sound (of 19.45 kz; potency: 60 w) for 3 minutes and then centrifugated to 3000 r.p.m. for 10 minutes. The most superficial aqueous of the three fractions collected, contains the antigen.

Sera: 756 sera of bovine have been isolated and examined. These bovine sera were partially from dairy farm cattle and partially from nomadic cattle. The samples examined were from pure local types except the first group that were hybrids of local and imported bovine (Frizon-Sahwal). All experimental animals came from areas where clinical infections are not ensured.

As serum reference we utilized the serum of rabbit injected with adenovirus bovine type 1, using the method described by Mani *et al.* (1976).

Technique of the reaction

Plastic dishes of 9.5 cm diameter were used and 8 ml of agar noble difco at 1.5% was added, when solidification took place 18 ml of agar at 0.8% was also added. The agar was mixed in a buffer solution of PH 8.6 prepared as follows:

NaOH	2 gr.
H ₃ BO ₃	9 gr.
Distilled Water	1000 ml.

At the most superficial layer of the agar, using proper stamp, 4 or 5 groups of little holes were extracted. Each group was composed of 6 peripheral holes and a central one of 7 mm diameter each, the distance that lay between the various holes was 3 mm. The central hole is filled with 0.05 ml antigen.

The same quantity of antigen (0.05 ml) is filled in the peripheral holes. The experimental serum is filled in the other holes.

The reading is carried out after an incubation at room temperature in wet room for 48 hours.

Results

The results of tests of bovine sera obtained from the experimental cattle are shown in table I. The overall results revealed a reactor rate of 25 percent in bovine sera. Table II shows results of tests of bovine in nomadic cattle and dairy farm cattle. Table III shows the results of tests of bovine sera obtained

from the same cattle in different seasons. It clearly shows that the reactor rate of bovine sera is higher in the dry season (Table III).

TABLE I - Results of tests for adenovirus group specific antibodies in bovine sera obtained from the experimental cattle.

Animal species	Nº Examined sera	Positive	Percentage
Bovine	756	190	25%

TABLE II - Results of tests for adenovirus group specific antibodies in bovine sera in nomadic and dairy farm cattle.

Origin	Nº Examined sera	Positive	Percentage
Nomadic animal	559	153	27.3%
Dairy farm cattle	197	37	18.7%

TABLE III - Results of test for adenovirus group specific antibodies in bovine sera obtained from cattle in different seasons.

Drawing time	Nº Examined sera	Positive	Percentage
Dry Season	290	116	40.0%
Wet Season	466	74	15.8%

Discussion

In Somali cattle the serological positivity indicates that adenovirus antibodies are found in the majority of bovine sera.

The positive overall reactor of 25 percent indicates that even in this zone of the African Continent adenovirus infections are sufficiently frequent both in nomadic cattle and in cattle kept in more intensive farming.

The average positive reaction rate of 25 percent for bovine sera in Somali

cattle is much higher than the finding of Eisa *et al.* (1970), who conducted a similar survey in the Sudan. Surprisingly, the present study has a similarity with those found in the temperate regions of England, 23% (Darbyshire and Pereira, 1964) and Belgium 29% (Wellemans, 1969) instead of the tropical region of Sudan.

On the other hand Eisa's results showed that the reactor rate of bovine sera from the herds kept for dairy and beef production is higher than in the nomadic herds.

He suggested that the cause is due to the intensive system of management. However, in Somalia the findings are in contrast to those found in Sudan.

Since both are tropical countries (Somali and Sudan have almost common environmental factors), the main cause of such significant differences should be examined to obtain a clear explanation. Thus further research seems necessary.

It has been found that the positive cases are much higher in the dry and hot periods of the year than in the other periods characterized by a higher precipitation and more extensive and rich pasture.

This seems to be related to the fact that during the dry periods the animals are frequently compelled to share the same pasture and watery places, and it is suggested that environmental conditions such as temperature and humidity may play an important role in the rise and the spread of the infection.

Acknowledgment

I would like to extend my sincere thanks to the Director of the Department of Natural Sciences at the Somali Academy of Sciences and Arts, Mr. Yusuf O. Ali, for his vivid and unforgettable participation and co-ordination that encouraged me to achieve my aim of publishing this work.

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SALIM H. ALIO

Lidjiryada ruusha ee adeenofiirus laga heley carun la' Soomaaliyeed

Dhaqaalaha dalkeena waxaa saldhig u ah wax soo saarka xoolaha iyo beeraha. Sidaa derteed hay'addaha ku hawlan cilmi baarista oo ay ka mid yihiin JUS iyo Akadeemiyadda, dhaqankaas ayey muhiimad gaar ah siiyaan. Cilmi baaris badan ayaa lagu sameeyey Xoolaha aanu dhaqanno (lo' Ari, geel iyo digaag) xag xannaano iyo xag caafimaad.

Xagga caafimaadka waxaa xoogga la saaray baarista cudurrada fida (infectious diseases) maadaama ay yihiin kuwa sida dhabta ah ay tirada iyo tayada xoolaheena hoos u dhiga.

Cudurrada la baaray waxaa ka mid ahaa: salmonellosis, Brucellosis, Tuberculosis, Mastitis, Hemorrhagic, Septicemia, Pullurosis iyo kuwo kale aan halkan ku soo koobi karin. Qoraalkan wuxuu ka mia saabsan yahay cilmi baaris lagu sameeyey xaqiijinta jiritaanka dalkeena cudurrada uu keeno Adenofiiruska. Cilmi-baarisayada ilaa haddeer la sameeyey waxay muujinayaan in Adenofiiriska (adenovirus) lo'da uu sabab u yahay cudurro badan oo khuseynaaya habdhisayada neefsashada iyo dheefshiidka (respiratory and digestive system).

Waxaa ilaa haddeer jira 9 nooc (strain) adenofiirus oo ka mid yahay nooca (strain) 5aad oo keena cudurka afka qalaad loo yaqaan « weak calf syndrome ».

Waxaa toogane (Positive) Noqdey 25% dhiiggii la soo qaadey xilliga jiilaalka Bbersentaj (Percentage) ahaan waa uu ka badnaa 40% kii la soo qaadey xilligii Roobka 15,8%.

Natiijada cilmi baaristaan waxay muujinaysaa jiritaanka waddankeena Hurgunka (Antibodies) adeno Fiiruska (Adenovirus) oo oggaanshaha ilaa heerka oo gaarsiisan yahay u baahan cilmi baaris kale.

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