Indian Journal of
Dermatology & Venereology

(*Incorporating Indian Journal of Venereal Diseases & Dermatology*)

Vol.: 27, No. 1. **January–March, 1961**

ORIGINAL ARTICLES

Ecologic Perspective of Dermatologic Problems in India

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A Note on the Influence of Socioeconomic Factors Generated by Underdeveloped Economy on the Nature of Skin Diseases and on Biocoenosis

Mr. President, members of the American Academy of Dermatology and syphilology, and guests.

This is the second time that I have been privileged to attend a meeting of the American Academy of Dermatology and Syphilology. The first was in 1948 when I attended through the courtesy of Dr. Earl Osborne. I was then introduced to him by my respected colleague, Dr. George Andrews. At that time I was not on the wrong side of the rostrum—I mean "wrong" for an amateur speaker like myself who would rather be behind. I little realized then that I should have this unique privilege of having a different perspective of the Academy and face this vast audience. Among the listeners are many of my mentors whose thoughts in print have influenced my dermatologic thinking. Hence it is with the greatest hesitation and humility, borne out of my humble dermatologic attainments compared to those of many of the distinguished participants of this Academy, that I accepted the invitation of Dr. Cipollaro, Dr. Osborne, Dr. Wilson, and Dr. Curtis.

When I realized that I had nothing new to offer to this learned audience, which is used to the terms "new, newer, and newest," I thought, I could at least offer an ecologic perspective of our speciality, as it exists on the other side of our globe. Incidentally, coming from the orient where we are only used to the terms "old and new" it was a little difficult for me to understand the terms "newer and newest." I also failed to find these terms in the English dictionary! However I realized the necessity of introducing these newer terms when I observed the new generation of dermatologists, working with newer

Submitted for publication to Arch of Derm., March 9, 1960.

John R. Rauschkolb Memorial Lecture delivered at the meeting of the American Academy of Dermatology and Syphilology, Dec. 8, 1959.

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gadgets of science in the research in the newest fields in a race of intense academic competition. I also saw the important role played by the older generation in having provided the opportunities of work and the platform such as this Academy for the new generation to steam off ! From my experience of observing dermatology in action in many countries around the world, I can say that you have evolved a unique and a healthy situation. This is due to the peculiarity of the American genius which has a capacity for constant evolution. It seems that now you have changed the well-known quotation of Thomas Jefferson of "Life, Liberty, and the Pursuit of Happiness" to "Life, Liberty, and the Happiness of Pursuit !" The latter is certainly a new philosophy which has helped you in establishing a "self-generating economy" as well as "self-generating scientific advances."

Human ecology, defined as the relationship of man to his environment, is a very wide field which includes socioeconomic, political, and mental hygeinic environments. For the purpose of this address, I wish to restrict myself only to the influence of socioeconomic environments on cutaneous health in my country. This will not only give an idea of the dermatologic problems as we see them, but will also help in understanding the genesis of these problems better. The other viewpoint I wish to present is the influence of economic factors on biocoenosis. Biocoenosis means an association of ecologically interdependent organisms. In this perspective we get a broad vista of the scheme of nature, in which we see the man, the pathogenic microbe, and the vector of this microbe on equal footing, existing interdependently. We can then consider how one single modification introduced by man, viz. economy, can change this association in his favour with consequent reduction of diseases.

I could trace the first thoughts on ecology and biocoenosis in the ancient Indian philosophic treatise—the Mahabharat.* It mentions, "The whole world of mortals is an interdependent organism." Then again there is a saying which means "living beings from the life of other living beings." However, the distinct trend in the orientation of thinking medical men, in enlarging the concepts of the genesis of disease to its relationship with the environment, can be seen only as late as the latter part of the nineteenth century. Prof. Virchow, the eminent pathologist (1821-1902), tried to integrate the study of medicine to the social and political surroundings of man. In pursuit of his ideal of such an integration he achieved remarkable eminence in the fields of medicine and also in politics as a Member of Parliament of his country.[1]

MacKenna,[2] discussing ecology in its relation to dermatology, mentions that "most of us must eventually return not only to the problems encountered in the clinic and at the bedside, but to the wider problems of adaptation of man to his environment and also to prevention of disease."

In the midst of therapeutic disposal of cases on organized knowledge of cause-and-effect relationship, little does one realize that there

* Dated early centuries Before Christ.

are other factors "behind" such apparent cases as parasitic infections, the allergies, the venereal infections, the deficiency dermatoses, and the metabolic diseases. These are due to conditions in the environment which are made by God and man. A study of these conditions which constitute ecology will involve excursions beyond the usual endeavours of our daily task, into the fields of environmental hygiene and medicine. As a consequence, one may also get thoughts on the political philosophies, at least as far as they influence the biologic relationship of man with man. However, I shall restrict my remarks to the relationship of socioeconomic factors to the dermatologic diseases.

Let us first consider the evolution of socioeconomic background of my country and see if this explains the genesis of some of our cutaneous problems. India is a vast subcontinent, with a glorious past, which had a highly developed civilization even in 2000-2500 years B.C. Sir John Marshall, who was responsible for the excavations at Mohenjo-daro and Harappa, which date to this period, mentions, "the civilization hitherto revealed at these two places is not an incipient civilization, but already age-old, with many millenia of human endeavour behind. it." The conditions prevailing then served admirably the needs of our people up to the fifteenth century. This was perhaps the golden era of Indian civilization, when our people had acquired remarkable skills of achievements in different fields of human knowledge such as the philosophies,* medicine,** architecture, economics and politics,§ commerce and navigation,‖ astronomy and mathematics.« They also reduced them to systematic written disciplines. There is evidence of a residential University even around the sixth century B.C. at Taxilla, where students from different parts of India, Persia, and Afghanistan came. The University was specially noted for science, medicine, and arts. Physicians who graduated in medicine from there were highly respected. It is mentioned that whenever Buddha felt unwell, he was attended upon by a famous physician who had graduated from Taxilla. The cutaneous diseases mentioned by them were leukoderma, leprosy, eczema, and mycotic infections, besides 14 other dermatoses. The scenes of our ancient civilization are recorded in many ancient manuscripts and on the monuments of archeological magnificence spread all over India. The manner of the life of our people is also documented therein. I propose to show you a few shall describe to you shortly. You can also see thereby how the impact of a different set of socioeconomic circustances generated by the visualize the scene then, and compare it with the one now, which I examples of these from four corners of my country, so that you may

* The Vedas (literary meaning: Books of Knowledge), 2000-2500 B.C.; the Bhagvad Gita (literary meaning: Song of the Lord: A well-known philosophic treatise on the conduct of life) and the Upanishads (also known as Vedanta, meaning the ultimate knowledge), 800 B.C.

** Ayurveda (Knowledge of Health). Charak wrote a treatise on medicine in 320 B.C. and Sushruta on surgery in early centuries of the Christian era.

§ Arthashastra of Kautilya (Science of Politics) 400 B.C.

‖ Mention of commerce and navigation in the Milinda, 100 A.D.

« The firest concept of zero and infinity in mathematical calculation, 2000-2500 B.C.

industrial revolution of the machine age changed the fortunes of a people. The impact of newly generated industry and commerce changed our socioeconomic conditions and the fabric of life, for better as well as for worse. It was better in terms of human progress. However, because of the social organization which did not change with the new era, it accumulated wealth in the hands of few, who by the circumstances of life were placed in privileged positions at the helm of political, administrative, or economic affairs. It was worse for a large majority of the rest who happened to be the underprivileged and who turned the wheels of industry. The problems of the latter were of adjustments of a vast rural community with simple habits to the complexities of urbanization. The adverse effects of such changes are always felt the most by those in the lowest economic levels.

The next fact forcefully brought home to me was the exactitude with which a given set of socioeconomic circumstances can produce identical results in terms of human existence and health even in geographically and racially different populations, thousands of miles away and a century apart in time. For instance, the socioeconomic scene in London between 1849-1905, can exactly be duplicated by that which we are facing today in the industrial cities. The nature of existence of an underprivileged community in 1849 was vividly described by Simon[3] in his report regarding the state of health in London. He wrote, "Men and women, boys and girls, in scores each, using jointly one single, common privy, grown-up persons of both sexes sleeping in common with their married parents, a woman suffering travail in the midst of males and females of several families of fellow lodgers in a single room—such are instances of the manner in which a people may relapse when their domestic comfort is neglected, and when they are suffered to habituate themselves by their circumstances to the uttermost depths of physical obscenity and degradation."

Let us compare the above scenes of existence of the poor in London only five decades ago with those in some of our industrial cities now. Bombay, Madras, and Calcutta can be considered as commercial and industrial capitals of India. In these cities there is a vast congregation of underprivileged people besides the better economic groups. The scene in the slum areas of Madras was described by Rajam[4] in 1957. He mentioned, "Between the census of 1941 and that of 1951, the population of the city has doubled. A large section of the low income or 'no income' illiterate, unskilled labour populations live on pavements, or in low roofed thatched huts under conditions of squalor, dirt, poor hygiene and debased sexual standards. The teeming childhood and juvenile section lives in a state of almost complete nudity; eating, drinking, sleeping and playing in a foul unhygienic physical environment." E. Lloyd Cunningham,[5] an American Missionary doctor in the interior of Bombay State, recently mentioned, "India is often classed as one of the underdeveloped areas of the world. So the medical profession is faced with many problems, as it attempts to share its services with the masses of village people who are so greatly in need of these. Among the most urgent of these problems may be mentioned ignorance and poverty, which almost invariably lead to

poor health, and a vicious circle, from which it is almost impossible for the people involved to extricate themselves without help from their brethren outside this circle." Now let us compare the results of such an environment in terms of health. The two reliable measures of health of a community are the infant mortality and the longevity rates. The infant mortality rate in India is considered to be one of the highest in the world and is 114 per thousand, compared to 19 in Sweden, 25 in Great Britain, and 41 in France. The infant mortality rate in Sweden was also around 125, 75 years ago, when the living conditions were poor. The expectation of life of an Indian is 32 years compared to 69 years in U.S.A., 70 years in Hollant and 67 years in England. The expectancy of life in Sweden was 35 years in 1775 and 45 years in Great Britain in 1900. These figures supply a vivid index of the influence of economics on the general health of a population. The results of such an environment on the personal hygiene was described by Farr[6] in 1900 in Great Britain. He wrote "The people still neglect the skin; the shower bath with warm, tepid or cold water, according to circumstances, is not used by people who wash their hands and faces every day more than once." This is not true, however, in India, where bathing with whatever type of water one may get is obligatory due to climatic and religious influences. But the effect of washing is nullified in many cases by the unhygienic conditions.

The effect of this environment and poor personal hygiene on the nature of dermatologic diseases was described by Banks[7]: "Sepsis, parasitic infestations—major and minor—the acute infectious fevers, syphilis and tuberculosis, all flourish in the crowded towns and cities. To these the processes of industrialization had added its own contribution of malnutrition, deficiency diseases and physical and chemical causes of the diseases of skin." Next, let us examine the data of attendance at the Skin and Venereal Diseases Departments of some of the hospitals attached to medical colleges in India. These hospitals are usually free, and cater to the needs of the lowest income group. Hence the nature of cutaneous diseases in the hospital clinics reflects the problems of maintaining healthy skin under the difficult circumstances of existence of the poor people.

For the purpose of the theme of my presentation, I have grouped the diseases in five categories as under:

I. Diseases of Poor Economy : These include parasitic infections the incidence of which can be correlated to the poor hygiene, and malnutrition leading to diminished resistance.

II. Social Diseases which include venereal diseases.

III. Allergy and Eczema: This group would show the capacity of the skin of our people to react abnormally.

IV. The Troublesome Three: Psoriasis, chronic bulbous diseases including pemphigus, and lichen planus are in this group.

V. Finally, the rest of dermatologic disorders.

Later, I shall show you the changes in the incidence of diseases in the above grouping in the better economic group as represented in the office practice.

The analysis of figures in Table 1 show that more than half of our outpatient load is due to the diseases in the first two categories, with which I shall deal in detail. Of these, scabies, pediculosis, pyoderma, leprosy, skin tuberculosis, chancroid, and, to a large extent, fungous infections are predominantly influenced by poor hygiene and low resistance. Scabies and pyoderma account for 66½ of cases in this group. The influence of better hygiene, better nutrition, and less overcrowding on the incidence of these diseases can be easily seen from the report of Banks.[7] He mentions that immediately after the war, with its consequent influence on the breakdown of family fabric, nutrition, and hygiene, cases of impetigo among school children in England numbered 64,000, while five years later, with settled conditions, they were only 27,000. Incidence of scabies in the school children declined from 38,000 to 4,725 during the same period. He also mentions the decline in scalp ringworm. Grant Peterkin[8] documents a steep rise in the incidence of scabies between 1941-1944 and then a stady decline to a very low level in 1958, when he remarks that "it is difficult to find examples of this disease to demonstrate to students." The incidence of ringworm in the officee practice in the U.S.A. was mentioned to have decreased in 1958 as compared to the year 1926.[9] This may be associated with the improved living standards. These changes in the cutaneous disease pattern brought about by economy and the living conditions will also be apparent when I shall present to you the records of my office practice. Let us next consider the impact of better economy on some of the remaining parasitic infections.

TABLE 1.—*Skin and Venereal Diseases Figures of Hospital Attendance in One Year (1957-1958)* *

	Bombay	Amritsar	Calcutta	Delhi	Vellore
I. Diseases of poor economy Arthropods infestations (scabies and pediculosis) Pyoderma Leprosy Skin tuberculosis Fungus infections	14,277(47)§	4,642(42)	6,851(50)	10,121(57)	2,879(57)
II. Social diseases (V.D.)	4,234(14)	374(4)	not supplied	2,602(15)	786(15)
III. Allergy and eczema	3,096(10)	2,236(20)	3,883(28)	2,150(12)	357(7)
IV. The troublesome three Lichen planus Psoriasis Chronic bullus eruptions	336(1)	365(4)	1,227(8)	1,254(7)	110(2)
V. The rest	8,456(28)	3,481(30)	1,761(14)	1,562(9)	994(19)
Total	30,399	11,098	13,722	17,689	5,136

*Seven hospitals replied to the questionnaires. The figures are totalled for the cities of Bombay and Delhi, from which more than one hospital's statistics were available.
§Number in parentheses are expressed in %.

Leprosy is still a major dermatologic problem with us. It is computed from scant available statistics that there are 2,000,000 cases of

leprosy in India. There are large endemic tracts of this disease in the economically backward regions of our country. Besides, in the cities, there are more cases in the poorer sections. Figueredo and Desai[10] have shown how leprosy spreads among the lower economic group. They reported that 10% of apparently healthy contacts (25 out of 254) were bacteriologically positive by concentration technique even though they showed no suspicious lesions. Many of these later developed active disease. The relationship of the decreased incidence of this disease to the socioeconomic and hygienic betterment of the people can be seen in the disappearance of endemic leprosy and leprosaria from Norway, England, and many other countries of Europe with improved living standards. It was endemic in the very same countries in the middle ages (1000-1400 A.D.). It still exists in economically poorer countries of Europe such as the Balkan States, Spain, Portugal, and European Russia, showing the importance of socioeconomic conditions more than the geography. Commenting on this, Cochrane[11] mentions, "the story therefore of decline of leprosy in Europe emphasizes one fact above all others, and that is, when circumstances arise which so improve the social conditions of the people, that there is less overcrowding with less opportunities for contact between individuals, the disease then begins to disappear from the country."

Nex I wish to demonstrate to you the influence of economics as well as habits on the disease. Skin tuberculosis with its many dermatologic patterns is still not rare in India. It was one of the major skin problems of the past in European communities, as can be gathered by many case reports and by the existence of centres of Finsen's method of treatment. Grant Peterkin[8] commenting on the decline of this disease, rightly mentions the important role of improved living conditions and successful public health campaigns. The causation of skin tuberculosis runs parallel with the incidence of systemic tuberculosis. We see many cases of lupus vulgaris and verrucous skin tuberculosis with localization on areas of trauma, such as the glutcal regions, the soles of feet, the elbows, and the face. The opportunities for such infections have been traced by me to (1) a lack of adequate protection by footwear and clothing, and (2) chances of traumatic inoculations from the dust contaminated owing to indiscriminate spitting by open cases of lung-tuberculosis.[12] The same factors of traumatic inoculations of other infective organisms on the bare feet explain many cases of maduromycosis and actinomycosis in the agricultural communities. Considering the incidence of different types of dermatomycosis in our mycology section, we had reported[13] that there is less incidence of dermatophytosis of feet (less than 5%) compared to the published data from the European communities. This is due to less opportunities for the fungus to thrive in the dry, thick, and bare skin of the feet. That changes in the habit with better living standards can bring about a change in the incidence of this disease is documented by Marchionini.[14] He mentions increased incidence of dermatophytosis of feet following more widespread usage of footwear on improvement of living standards in Turkey. These instances classically demonstrate the influence of habits on the host-parasite relationships.

Venereal diseases constitute an interesting field which reflects the socioeconomic factors operating in a community. These diseases are responsible for almost a sixth of our caseload. In the genesis of these diseases, the advantages of improved economy are balanced by the disadvantages of a loose social fabric generated by the very same economic factors. Hence one does not see a commensurate fall in the incidence of venereal diseases with better economy. Thus arises the common saying that "civilization is syphilization!" I shall restrict my comments to the impact of poor economy on the incidence of venereal diseases. Poor economic circumstances are responsible for a lack of opportunity for a normal family life, and for lack of education, restricting the intellectual diversions. Sex is the only recreation easily available to a vast majority with lesser intellectual developments. This must result in a high incidence of venereal diseases, particularly in the low-income city population. Reporting on the relative incidence of venereal diseases according to vocational groups, Jungalwalla[15] mentions 62% incidence in the low-income group consisting of labourers and domestic servants. Another outcome of poor living standards is also seen in the existence of nonvenereal primary childhood syphilis among the poor sections of slum dwellers reported by Rajam.[4] Then there are special foci of high endemicity of syphilis among the aboriginal tribes. These tribes constitute the original inhabitants of India, who were crowded out by the migrants from Central and Eastern Asia in prehistoric times. There are isolated pockets of these people in many parts of India, and these are all still inaccessible to modern transport. Due to backward existence, and peculiar social customs in certain tribes, one man is allowed several wives, and quite the opposite in another tribe, several brothers share one wife! In a close community with the above-mentioned social habits, if a disease like syphilis is introduced, the whole community is likely to share it over a period of years. The influence of social factors on the incidence of venereal diseases according to marital status has also a peculiarity in our country which is at variance with yours. Tampi[16] and others reported the prevalence rate of 68.5% among the married from the poor and middle classes who attended their clinic at Delhi. Compared to this, the British Co-operative Clinical Group reported 68.8% and United States Public Health Service 70% in the unmarried. On analyzing further this contrast between the married persons of the East and the West, they mention, "Early marriage is still prevalent. In such instances even though the individual is married, he has to find a sexual outlet by resorting to extra-marital sources, due to lack of sexual maturity of the spouse. An-other reason is entirely economic. The husband finds it difficult to sustain the family in the urban conditions, and consequently he lives alone, and has to seek extra-marital contacts to satisfy the sex urge." These facts show very vividly some of the ecologic factors which are operative in the social conditions of the poor economic groups.

Suitable nutrition and an outdoor occupation giving less opportunities of exposure to unhygienic surroundings can maintain the skin and body healthy even in the midst of unfavourable circumstances. This can be vividly demonstrated in the fisherfolk. In spite of igno-

rance and poverty, they have less ill health because their staple diet of fish and rice makes their nutrition better than others in similar circumstances. Their skin is also comparatively more healthy because of constant exposure to sun rays. From this evidence, we not only see the predominant role of socioeconomic surroundings in the causation of parasitic diseases of the skin, but also get an explanation for some of the peculiarities of disease pictures in different geographic areas.

Having considered this, I wish to offer you another perspective of the inter-relationship of the two important facets of human existence, viz., economics and biocoenosis.

Influence of Economy on Biocoenosis :

Biocoenosis is defined as an association of organisms which are ecologically interdependent. It would be useful to have an understanding of the biocoenotic relationships of different living organisms, of which man is but one part. Proper understanding of this knowledge will enable the man—who is the only "thinking" species of the whole group—to improve his position in the group.

Let us first see how man changed the ecologic balance of nature in the process of civilization. Evolution of social organization of man from primitve existence introduced new situations. For example, as he started to live in a community without adequate preparations to stay as a group, he created in his environment congestion, problems of housing and hygiene, and of necessities for storage of food and disposal of waste. These in turn attracted animals, rodents, and insects with their own microbial flora, thus completing the biocoenotic balance. With improvement of economy he got the leisure and an opportunity to visualize the unfavourable factors of his own creation, and he started improving these for a better organized society. He also learned the causative role played by the vectors and the germs in his ill-health and took measures to eradicate them wherever possible. If he could not achieve this, he learned to "coexist" with them with the development of immunization procedures. Thus, he again changed the biocoenotic balance in a way more favourable to himself. This process has already taken place in an advanced degree in your environments, and has started taking place in other countries, which are popularly known as underdeveloped areas.

The factors of environmental hygiene and immunity play possibly the most important role in not only the genesis of diseases, but also on the severity of disease pictures. Phagedenic ulcers, so-called Ulcus tropicum, severe cases of filarial lymphedema, severe varieties of smallpox, extensive pictures of skin tuberculosis, and destructive ulcerations of treponematoses, all of which adorn the illustrative material of textbooks of tropical diseases, are nothing but an expression of poverty, ignorance, and an unfavourable biocoenotic balance between man and the microbe. This balance can be changed by education of the public, improvement of environment hygiene, eradication of vectors of diseases, improved nutrition, and applications of techniques of immunological protection leading to better resistance. All these in

turn depend on economy, which is the most important single link introduced by man in nature's balance of biocoenosis.

The role of improved economy in the cutaneous disease pattern can also be documented by comparing the diagnosis of cases in my office practice with the figures of hospital attendance. I have grouped the diseases in the same fashion as the figures for hospital attendance Table 2 gives this information.

We see from this that there is a sizable reduction in the disease of poor economy by half. Chronic infections such as leprosy and mycotic infections account for 80% of cases in this group. The fall in the per-

TABLE 2—*Nature of Skin Diseases in the Office Practice in Bombay (One Year)*

Description	No. of Cases
I. Diseases of poor economy	821 (27.0%)
II. Social diseases	47 (1.0%)
III. Allergy and eczema	797 (27.0%)
IV. The troublesome three	272 (9.0%)
IV. The rest	1,045 (34.0%)
Total	2,982

TABLE 3—*Ten Common Dermatoses in Office Practice in One Year*

1. Allergy and eczema	27.0%
2. Fungous infections	13.2%
3. Vitiligo	10.8%
4. Leprosy	7.1%
5. Dyschromia	4.5%
6. Psoriasis	3.3%
7. Pyoderma	2.1%
8. Lichen planus	2.0%
9. Acne vulgaris	0.5%
10. Seborrheic dermatitis	0.5%
The Rest	29.0%
	100.0%

* All figures expressed in %.

centage of social diseases can be due to their lower incidence as well as their shift from the consultants to the hands of the family physician. The increased proportions of allergy, eczema, lichen planus, psoriasis, and bullous diseases reflect the difficult dermatologic problems.

Next, I have listed the 10 common dematologic diseases, according to their incidence, to compare with similar information published by Corson[9] and his colleagues in the U.S.A.

Several interesting comparable deductions can be made from Table 3. Allergy and eczema head the list and compare with the same findings by Corson. However, contrary to the situation in the United States, contact eczema constitutes only 7% of the total in this group. The majority of cases are eczematous dermatitis following parasitic infections or due to systemic allergy. Fungous disease is our second major problem, and this reminds one of Goodman's[17] title of a report in 1929, "Tinea, the Second Most Prevalent Disease of the Skin." With improvement of your living standards it has gone down to the sixth place in Corson's[9] figures of 1959. Scabies is not seen in the "first 10" list and pyoderma has taken the sixth place, contrary to the hospital figures where they are in the first two places. Vitiligo and other temporary disturbances of pigmentation termed dyschromias are peculiar problems of more pigmented skin. They account for 15% of office practice. The rest of the diagnoses mentioned in Table 3 do not require any "ecologic" comment.

Having given you some ideas of the influence of socioeconomic factors on ecology and of economics on biocoenosis, let us see if we can predict the trends of dermatologic pattern of the future. With industrialization and improving economic standards a change in the pattern of skin problems may occur in hospital practice. Coincidentally, severe and widespread parasitic diseases of skin should diminish as a consequence of better living standards. The incidence of diseases such as leprosy and skin tuberculosis should become less. In the venereal diseases group, the diminution of cases of acute gonorrhea and late syphilis is already visible in our hospital records. This can also be attributed to the large-scale use of penicillin, which is now within reach of the poorer sections. The impact of antibiotics in reducing the incidence of other infections like pneumonia, bacillary dysenteries, typhoid, cholera, meningococcal and pneumococcal meningitis, is equally felt. The contact and systemic chemical allergies may also possibly increase with new chemicals being used in the modern ways of life. I have formed an impression that the magnitude of the problem of contact chemical sensitization would not be commensurate with yours, as the brown skin is "dermatologically" more resistant to chemical trauma. In spite of the lack of efficient protective measures in many colour, chemical, textile, petroleum, and cement industries around Bombay, and current widespread use of synthetic materials, we do not see as many cases of contact dermatitis as one would expcet to see. Having already been endowed with your ideal of a brown skin, your problems of cosmetic improvements of a white skin to a more desired tint, will not engage our time in research However, the major burden of our colour problems will be that of restoring to normal, variegated dyschromias and depigmentations which you do not see as much.

I have given an idea of the dermatologic problems of underdeveloped areas to you, who know the cutaneous problems of an "overdeveloped" economy. We have viewed these diseases with the perspective of biologic ecology and economics. Ecology provides a third dimension to the bidimensional view of etiology and pathogenesis of diseases with which we generally become familiar in the course of our studies and practice. It is an important dimension to recognize from the point of view of prevention of diseases. The lesson we learn from such an ecologic perspective is that eveery well-developed Skin and Venereal Diseases Department should orient the thinking to the genesis of diseases and their prevention. Hence, they should have the services of paramedical personnel like Health Visitors. The latter are necessary for taking effective measures to prevent the spread of a disease around each unit of it in the form of a patient. They can also serve to educate the public in improving their unfavourable surroundings. This is of obligatory importance in underdeveloped areas. Absence of such a facility transforms the entrance and the exit of a clinic into a revolving door, through which the same patient goes round and round.

One might also use this ecologic knowledge in "reverse." Thus we may say, that one can visualize through a "retrospectoscope" the socioeconomic development of a community by the study of diagnostic

records of its cutaneous probleems. This ability of projection and retrospection should equip the practicing dermatologist to the realization of factors "behind" the apparent etiology which he must not ignore.

Ladies and gentlemen, in this presentation, I have offered you nothing "newer" than a perspective and a viewpoint, and I hope you have liked the view.

Many friends have helped in the preparation of this article by gathering facts from various sources. In particular I wish to thank: (1) Dr. A. K. Awachat, Hon. Dermatologist, Safdarjung Hospital, Delhi; Dr. P. N. Behl, Hon Dermatologist, Irvin Hospital, Delhi; Dr. H. J. Choksi, Hon. Dermatologist and Venereologist, B. Y. L. Nair Hospital, Bombay; Dr. R. N. Choudhary, Director, School of Tropical Medicine, Calcutta; Dr. O. Gass, Professor of Dermatology, Christian Medical College, Vellore, and Dr. K. C. Kandhary, Associate Professor of Dermatology, Amritsar, for supplying their departmental statistics which are incorporated in the main Table; (2) Pro. F. A. E. Crew, F.R.S., Visiting W.H.O. Professor of Social and Preventive Medicine, T. N. Medical College, Bombay, and Dr. R. V. Sanzgiri, Consulting Pediatrician, Bai Jerbai Wadia Hospital for Children, for helpful discussions and suggestions.

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