(For use of botanical collaborators only)

CONTRIBUTIONS TOWARD A FLORA OF NEVADA

NO. 45

MEDICINAL USES OF PLANTS BY INDIAN TRIBES OF NEVADA

by

Percy Train, James R. Henrichs and W. Andrew Archer

- - -

Revised edition, with summary of pharmacological research

by W. Andrew Archer

Nov. 26, 1957

A series prepared through the cooperation of
the National Arboretum and the Plant Introduction Section
Crops Research Division
Agricultural Research Service
U. S. Department of Agriculture
Plant Industry Station
Beltsville, Md.

Address all inquiries concerning this series
to W. Andrew Archer, Plant Industry Station,
Beltsville, Maryland

Percy Train collecting Indian medicinal plants
for pharmacological testing.
Kyle Canyon, Charleston Mts., Clark Co. 1939.

Additions and corrections for
Contributions Toward a Flora of Nevada, No. 43
Polemoniaceae of Nevada.

page	line	
Cont.	3	for nevadensis read nevadense
21		Substitute the following in the key after the first 7.
		8. Maximum leaf-length 45-75 mm. . 4a. ssp. LONGIFOLIA
		8. Maximum leaf-length 20-40 mm.
		9. Lower leaves broad-linear, spaced 4b. ssp. CORTEZANA
		9. Lower leaves narrow-linear, crowded 4c. ssp. HUMILIS
		7. Pubescence obsolete; leaves elongate. .4d. ssp. CALVA
		3. Leaf-texture thickish; outline mostly oblong to ovate, short-acuminate. . . . . 5. P. GRAYI
		2. Corolla-tube over 20 mm. long.
		10. Tube-length 20-25 mm. . . . . .6. P. STANSBURYI
		10. Tube-length 26-33 mm. . . . . 7. P. SUPERBA
23	1	replace period by comma
25	5	after speciosa insert Greek letter beta.
	7	for loc. cit. read op. cit.
29	9	for 0.5 - 1 read 0.75-1.25
34	8	for Nev. read Rev.
38	4	for maxium read maximum
39	4	for 3.5 read 3-5
	1 up	for trhroughout read throughout
48	4 up	for days read day.
54	6	for multiflorus read multiflorous
59	7 up	for its read the
60	5 up	for bout read about
61	11	delete to a corolla which may be; add comma after below.
	12 up	after knob insert (Name in honor of F. Gil.)
64	1	replace semicolon by comma
70	10	for 240 read 230
71	2	for loc. cit. read op. cit.
	10	after long-exserted insert, slightly unequal; style long-exserted;
74	9 up	for Fa. read Fam.; for 1957 read 1958
84	3	insert (Name from Greek for resembling Ipomoea.)
85	2	for thrsoid read thyrsoid
86	2	for E read SE
87	11	for 1956 read 1936
	3 up	delete in
89	9 up	for DENSIFLORUM read DENSIFOLIUM
92	3	delete 6-8 mm. long,
94	1	for Bot. read bot.
	12 up	for 1948 read 1848
95	9	for visid read viscid
	1 up	insert: 169,
97	~~12~~ 13	for Co. read Cos.
99	4	for "dactylophyllus" read "dactylophyllum"

TABLE OF CONTENTS

MEDICINAL USES OF PLANTS BY INDIAN TRIBES OF NEVADA

by Percy Train *, James R. Henrichs * and W. Andrew Archer

- - - - -

Revised edition, with summary of pharmacological research

by W. Andrew Archer

Contributions Toward a Flora of Nevada, No. 45 **

Preliminary studies concerning the value and kind of plants used for medicine by the Nevada Indians, were begun in 1935 by the National Emergency Relief Administration in Reno under the sponsorship of the Carson Indian Agency and the University of Nevada. This finally developed into a more intensive plan with a cooperative agreement between the Bureau of Plant Industry, of the U. S. Department of Agriculture, the Works Project Administration, and the Botany Department of the University of Nevada. This latter phase started in 1937 and continued for four years. During this time the work consisted of three objectives: The main one being the securing of data directly from the Nevada Indians regarding their medicinal uses of the native plants; second, the collection of adequate quantities of dried material of these same plants for use in pharmacological tests and studies; and third, the accumulation of herbarium specimens of the general flora of the State to supplement the first part of the undertaking. These plants are now available in the U. S. National Arboretum in Washington, D. C. and the University of Nevada in Reno, as well as in several of the larger herbaria of the United States.

The preparation of herbarium material of the general flora was carried on by several groups of collectors who covered practically all parts of the State.

The greater part of the actual contact with the Indians and the accumulation and recording of that data was made by Percy Train, Agent of the Bureau of Plant Industry, and his wife, although in the first year Mrs. E. V. A. Murphey, Miss Tim Breene and Harry Sampson also were engaged in the work.

James R. Henrichs, Agent of the Bureau of Plant Industry, in addition to the collecting of plants and analysis material in the field, supervised the Reno office, through which all of the field data and plant material were sent.

W. Andrew Archer assisted mostly in an advisory and editorial capacity for the original edition, and in the present has contributed an abstract of the pharmacological research.

(*) Deceased.

(**) The original edition appeared as Contribution No. 33, 3 pts., 199 pp., Dec. 1, 1941.

INTRODUCTION

Contributed by Mrs. Agnes Train (presently Mrs. J. M. Janssen).

This publication is not primarily a work on ethnology, but is presented to the reader as a permanent record of approximately 200 native plants, considered to be of medicinal value by the Paiute, Shoshone, and Washoe tribes of Nevada.

The purpose for which the plants are used is given here as accurately as possible from the data secured. No attempt is made to substantiate the claims of the Indians since that province lies within the scope of the pharmacological studies already mentioned.

Especially to be stressed is the great amount of time and study which has been devoted to connecting the data thus secured with the accurate botanical determinations of the plants involved.

The knowledge of medicinal plants is defined almost exclusively to the fast disappearing older generation. As a rule the younger generation knows little and cares less about this subject, so it was felt necessary to obtain a record now, before all of this Indian medicinal plant lore would be lost forever.

SOURCE OF INFORMATION

The day of the old Indian Medicine Man, with his hocus-pocus, and bag of trinkets and charms, has long passed in Nevada. When the old medicine man died, few aspired to his place, and 'Indian Medicine' has since been used, without superstition and incantation, by the individuals themselves and a few more modern medicine men and women. The so-called medicine man of today is simply an individual just two jumps ahead of his fellow tribesmen and alert to the opportunity presented to make money by acquiring medicinal plant knowledge handed down to him from generations past and augmented by his own experiences. Several of the latter, notably, Ike Shaw (Shoshone) of Beatty, Bronco Charlie (Shoshone) of Ruby Valley, and Dan Voorhees (Paiute) of Walker River Reservation, had a wide knowledge of medicinal plants and a substantial record of effective cures behind them.

The office of 'Chief,' while nominally continued, has been reduced to little more than one of courtesy, and was not an important source of information.

In each Indian community, large or small, there were found several individuals not rated as 'medicine men' but with outstanding intelligence, reliability, and a wide medicinal plant knowledge. These were the type sought as informants and they supplied most of

the information.

Especially well informed among this group were: Mrs. Orna Jagles (Shoshone), Tonopah; Tom Stewart (Shoshone), Beatty; Maggie Patterson (Shoshone), Elko; Topsy Long and Billy Mose (Shoshone), Ruby Valley; Maggie Shaw (Shoshone), Lida; Annie Lowry (Paiute), Lovelock; Judge Cleveland (Paiute), Schurz; Dave Mauwee (Paiute), Nixon; Jimmie Darrough (Shoshone), Reese River; Louise Thompson and May James (Paiute), Yerington; Willie Smokey (Washoe), Dresslerville; Anna Downington (Paiute), Reno Colony; Richard Birchum (Shoshone), Austin.

During these four years every Nevada Indian reservation, colony and community, large or small, in the entire State was visited, and a close study of the Paiute, Shoshone, and Washoe languages, as far as plant names and medicinal usages were concerned, was made in the field. By constant reverification of these data the authors feel they are presenting a comprehensive and accurate report on the medicinal usages of plants by Nevada Indians.

METHODS OF SECURING INFORMATION

It is wasted time and effort talking to an Indian about any plant unless you show it to him, for he may be talking about one plant and you another. Accurate information could be gained only by carrying large numbers of fresh and pressed plants to show them. Field herbaria in loose-leaf form, containing many hundreds of accurately named local plants were carried for this purpose. Sometimes informants would show the contents of their own 'medicine bags' and again were employed to go long distance to secure and identify plants under discussion. In no case was information accepted that was not verified by actual contact with the plant involved. When informants produced their own plants, these were sent to Washington for positive determination. When identification could not be made and only Indian names secured, they were classed as 'Undetermined'.

During the work of plant collecting a rare opportunity was presented for meeting the older generation in individual families living in remote parts of the desert, as well as in larger Indian settlements and reservations in Nevada. These scattered Indian families were a rich source of medicinal plant information, for they were more dependent upon themselves and their own medicine.

APPROACH

To walk up to an Indian and ask for his medicinal plant lore handed down from his ancestors would most certainly meet with a blank stare, or a prompt 'No savvy.' This information is zealously guarded, not only from the white man but sometimes from Indian

neighbors as well.

However, contrary to expectations, only slight difficulty was encountered in getting them to 'talk' after the proper approach was worked out.

One cannot long work among the Indians without discovering that they have a good sense of humor. They will laugh at themselves, but if they can laugh at you so much the better. Nothing sends them off into gales of laughter more than hearing a white person, particularly a woman, speak their language. The surest way to arrive at a friendly atmosphere is to plunge into Paiute or Shoshone, saying a few simple sentences asking them in their own language about Indian medicinal plants and ailments. Mr. and Mrs. Percy Train, who collected the greater part of the Indian medicinal information in this report, were accompanied by a Cocker Spaniel, and a casual call to him by his Shoshone name 'Be-ah ning-gee' (big ears) was always good for an astonished laugh. Without exception these methods have broken down reserve, for they know at once such knowledge bespeaks much association with Indians.

The surest way to arouse resentment and reticence is for any person to approach an Indian with a book and a pencil and arbitrarily demand yes and no answers on any subject. Polite friendly attention given to subjects other than the information desired paid good dividends in willing cooperation later.

It soon became evident that the more the interviewer knew of Indian diseases and medicines, the more information would be volunteered. Early in the work much fewer facts were disclosed, but as the interviewer acquired a working vocabulary, less reserve was met and fuller information furnished. Later in the work, during interviews, an answer to a question in English would often be forthcoming in Paiute or Shoshone when they learned their language was understood. This fact was particularly noted in regard to the subject of venereal diseases. Their modesty was remarkable and it was seldom they would converse on the subject until it could be talked about in their own language. Later, the Shoshone term, Tim-bah-hay nut-zoo (bad disease medicine) and Quoh-nudz-uh na-tiz-u-ah (bad disease medicine), Paiute, had only to be mentioned that way when full information accompanied by a hearty laugh was usually the response. Stress was first made that we were working for the Government and the information was to be preserved for the benefit of their children and coming generations. Next, that their neighbors would not be told information given in confidence, for each family group often had their secret remedies for ailments given to their friends or sold to others, which they did not want freely circulated.

In fact, among the Indians such medicines are quite a source of income. Prices charged were amazing. Five dollars for a small handful of dried leaves or roots was not at all uncommon. Care was

sometimes taken to pulverize the material so that the buyers could not recognize the plants and gather them themselves.

METHOD OF RECORDING

It was soon found to be a mistake to work with larger groups. Much freer discussion was found with one individual or family.

Plants of known Indian medicinal use were exhibited, one at a time, to break the ice and start discussion. Then hundreds of pressed plant specimens in the field herbarium would be shown, thus checking precious information, picking up new medicinal uses, and new medicinal plants.

The Indians seemed to have little difficulty in recognizing pressed plant material if they were familiar with the plant at all.

While one person exhibited the plants and asked the questions another recorded the Indian name of the plant, its medicinal use, and Indian pronunciation of the plant name.

While many of the Nevada Indians speak English as well as a white man, the conversation might run something like this: Question: 'You see um?' Answer: 'No see um. He no grow around here.' Question: 'You see um?' Answer: 'Yeah, me see um.' Question: 'What you call um?' Answer: 'Call um Doot-see-up.' Question: 'What that mean?' Answer: 'Mean squirrel eat em.' Question: 'What you use em for?' Answer: 'Legs swell-em up, mash em up leaves, put em on. Maybeso all go away. Another time my Grandma she say, you make a boiling, you drinking, he no hurt.'

An individual report was made for each locality and every informant listed so that all information secured can be checked back to its source. These reports, together with all original data from which this compilation was made, are on file at Washington and are available for reference.

In all, there were interviewed 275 Indians from every community in the State and 103 reports containing 575 pages of data were sent in from the field.

INDIAN PLANT NAMES

Like our own common names, many of the Indian plant names have no special meaning, but an effort was always made to break down the Indian names into their own separate meanings--thus, Enga-mo-wanya would translate Enga (red) mo-wanya (flower). Esha-wanna meaning Esha (coyote) wanna (trap or snare). Soh-noy tah-cun-oh-quah, meaning Soh-noy (little bird) tah-cun-oh-quah (food). Sah-nah tonegan,

meaning Sah-nah (gummy) tonegan (flower). (See also the vocabulary page 11).

It was found that, as a rule, if the Indians had a use for a plant they had a name for it. If not used for food, medicine, or fuel, words like Enga-mo-wanya were applied to many plants having red flowers. To other plants they would reply, 'Me see him, he no got any name.' It would be safe to say that the average Indian knew as much as or more, than the average white person, about the plants and flowers around him.

A considerable variation was noted in plant names used by the same tribe in different localities. This is also true of the endings of the same word. Thus, Doot-see-up may become Doot-see-ab in another locality nearby. Leptotaenia multifida in one part of the State will be Tohsa, then Taw-zah, Toh-sah, Toh-sup, or Toh-aw-saw-ve, or Toh-sah-ah. Even if the pronunciation in any locality is quite dissimilar the Indians appear to have no trouble in recognizing either form.

These divergencies are probably due to the fact that they have no written language. The conclusion was soon reached that there is a distinct transition going on in the syllabic sounds in these three Indian languages. This is no doubt due to the unconscious effect of the English tongue with its distinct syllables on the Indians when speaking their own language. It affects only those who speak English distinctly - in which case they pronounce their own syllables much more clearly and sometimes differently than do the older unilingual individuals. The speed with which the Indian words were spoken varied greatly among different Paiute bands. In some localities the speech rolls out with such extreme rapidity as to make recording difficult, while in other places, the same tribe speak in a long drawn-out, sing-song manner.

Little difficulty was experienced in using English letters to record phonetically the words as pronounced by the English-speaking Indians. It must be admitted, however, there are sounds almost impossible of reproduction by the English tongue and more difficult to record. Particularly in the Paiute language the P and B are sometimes interchangeable with all gradation in between. The B is sometimes intermediate between B and V and the K also between K and G. Among the Northern Paiutes at Owyhee Reservation, there was a tendency to whisper a consonant at the end of a word - unrecordable. This latter was seldom encountered elsewhere. Many Indians took a special interest in being sure that their words were properly pronounced before recording, and whenever a list of the phonetically written plant names was shown to a young, educated Indian, he would read them off so readily as to amaze the older members of the group.

ORTHOGRAPHY

The authors anticipate some protest from ethnologists and ethnobotanists when they discover that their phonetical method has not been used in recording pronunciation of Indian plant names. The answer is, this is not a treatise on ethnology. Had it been so intended the authors would have used the newer and undoubtedly more accurate method of recording sounds which, however, would have been unintelligible to the layman.

We believe that a better service will be rendered by using the older phonetical method understood by the reader for whom this publication is intended rather than that method used and understood by a few. Anyone understanding ordinary phonetical spelling can pronounce readily these Indian words which have been separated into syllables, well enough for all practical purposes and well enough for the Indians to understand them. The accented syllables have been underscored. The accent is of greatest importance in the languages of these Nevada tribes, and whether the Indian understands you depends very largely on the proper place and amount of accent. It will be noted in the Shoshone language that the accent more often than not is on the first syllable.

COMPARISON OF MEDICAL KNOWLEDGE

The Shoshones feel themselves superior to the other tribes and certainly were found to possess a much greater medicinal plant lore and used more native medicines than either of the other tribes. The Paiutes rate next with a considerable knowledge but used less medicine and were familiar with fewer plant names. The Washoes were found to have the least information on the subject. With the exception of the Moapa Paiutes of southern Nevada, the Washoes are the smallest tribe in the State, confined to a very small area, and gather few medicinal plants of their own. What they do use they generally secure by purchase from neighboring California tribes. Consequently, they do not know the growing plants when they see them.

The Moapa Paiutes occupy a small reservation in southern Nevada and speak quite a different language from the Northern Paiute. They have a considerable knowledge of medicinal plants and use them freely. Due to geographical location, all of the Moapa Paiute medicinal plants were from the Covillea belt of the low altitudes and of genera different from those used by the northern Indians.

In contrast with the Washoes, the Shoshones and Paiutes gathered their own medicinal plants which usually grew in the nearby mountains, traded and exchanged with distant Indian communities, and even crossed the State for species not growing near their homes.

INDIAN DISTRIBUTION

In this publication will be found a map of the State showing the principal Indian reservations, colonies, and small settlements of the Indian population of Nevada. Some small Indian communities are not indicated. (See page 10).

Generally speaking, with a few overlapping exceptions, a line could be roughly drawn from north to south through the center of the State. Paiute bands occupy the western section and Shoshones inhabit the larger eastern portion.

The Paiutes in Nevada were originally and still are more of a valley people than the Shoshones. Their more limited plant knowledge may have been caused by this environment, for few of the medicinal plants grow at lower elevations.

Shoshones were originally a mountain loving tribe and still are to a great extent, although cultivation of their own farm lands and labor on valley ranches for the whites has now brought many of them to the lower elevations. This close contact with the mountain flora produced their wider knowledge of medicinal plants.

The Moapa Paiute, numbering approximately 160, are a small subtribe, closely related to the Northern Paiutes, though their language is entirely different. They have long occupied a limited area in the extreme southern portion of Nevada. Their reservation comprises some thousand acres of land entirely in the low, hot, semi-arid basin along the narrow course of the Moapa and Muddy Rivers, and they have had little access to higher mountains.

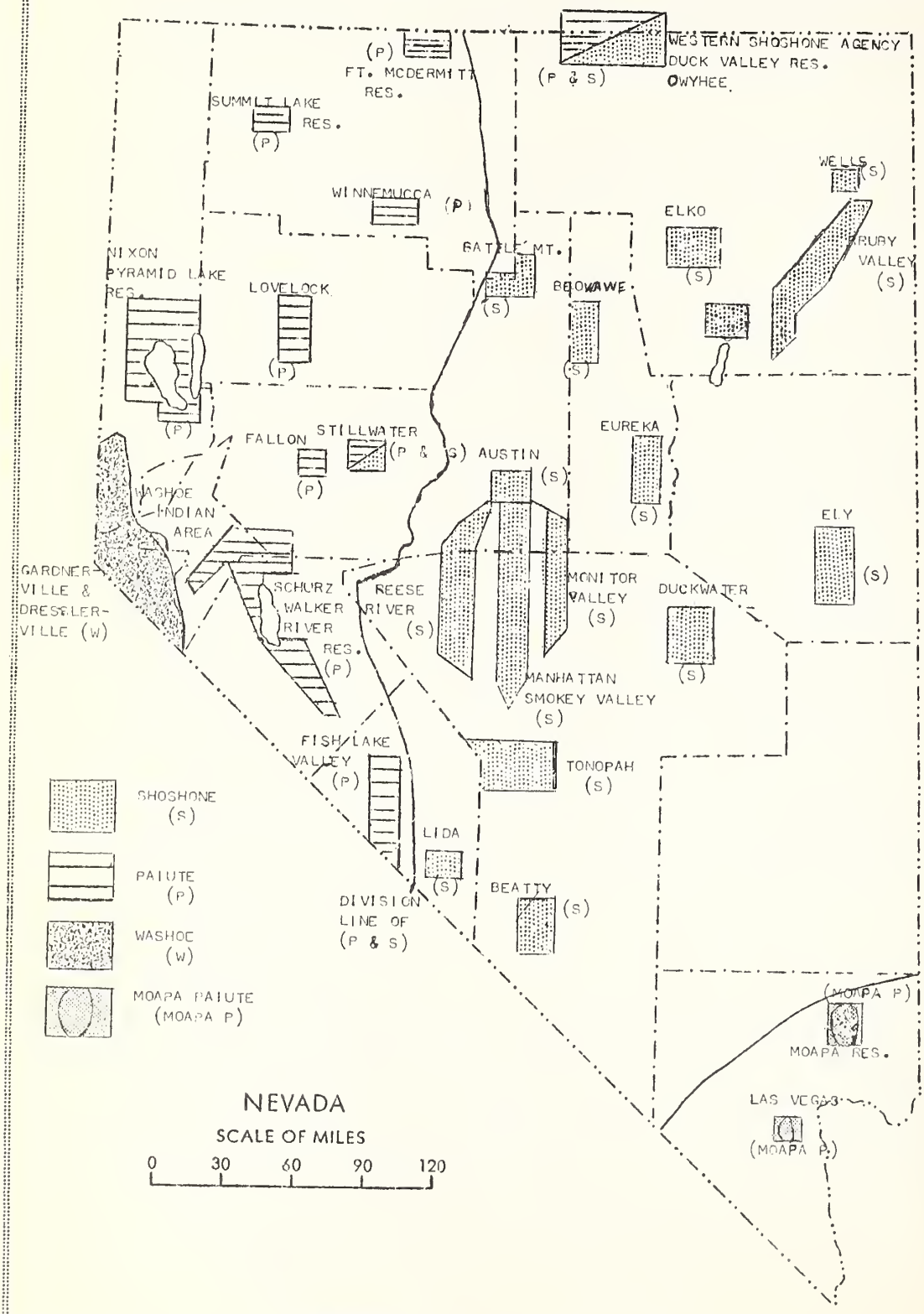
The Washoes, numbering approximately 500 are the smallest of three major tribes, and occupy a small area of fertile valley lands along the Sierra Nevada foothills near the western border of the State.

INDIAN POPULATION

No Indian census was taken by the Federal Government in 1940 and the Indian Service in Nevada was unable to supply definite total figures on the Paiute, Shoshone and Washoe population for the State. However, by taking the latter's count of those Indians on or under reservation jurisdiction, and adding the number of non-reservation individuals, based on personal knowledge, the following estimated figures for Nevada were arrived at:

Shoshones	1,712
Paiute	3,112
Washoe	489
Moapa Paiute	156
Total	5,469

Early estimates for the 1861 period, mentioned by the Indian Agency at Stewart, give the total figures on Nevada Indian population at between 7,000 and 8,500. There seems, therefore, to have been a loss of approximately thirty per cent in the last eighty years.



Indian Reservations And Communities.

PARTIAL VOCABULARY OF INDIAN NAMES AND TERMS

MOAPA PAIUTE

ah-kuk: sunflower, or any sunflower-like plant, especially those having edible seed.
kiva: mountain.
kiva ah-kuk: mountain sunflower.
kiva kah-nav: mountain willow.
i-era-midja: turtle leg.
quoh-soh-no-ah-bim: burn, or sting plant; a name applied to Urtica.
quoy-oh-guv: quail brush.
wuh-siwimp: prickly; a term applied to Argemone.

PAIUTE

ah-dye-ee: diarrhea.
ah-dye-ee na-tizuah: diarrhea medicine.
ah-kuh: any sunflower-like plant, especially those having edible seed.
ah-ku-pu: a variant of the preceding.
ah-rahd-zee-ah-ee: neuralgia. Also meaning toothache.
ah-rahd-zee-ah-e na-tizuah: toothache medicine.
ba-wa: swelling.
ba-wa na-tizuah: swelling medicine.
bee-hee nooma na-tizuah: literally - pneumonia pain medicine.
bee-shet-you: good.
bee-shet-you na-tizuah: good medicine.
booie: eye.
booie nooma na-tizuah: eye pain medicine.
coo-day-ee na-tizuah: burn medicine.
coo-see: gray.
coo-see ah-kuh: gray sunflower.
coo-see suh-e-wee: gray willow.
dah-keep-poh-noh na-tizuah: kidney medicine.
dahm-hah-nooma: literally - pains all over.
dama: tooth.
dama na-tizuah: literally - tooth medicine, but used to mean toothache medicine.
dogo-wah: rattlesnake.
dogo-wah na-tizuah: snake medicine, i.e., snakebite medicine.
doo-ee-nah na-tizuah: rheumatism medicine.
dootsie: little.
dootsie tah-bah-she-up: little sunbrush.
dosa: white.
esha: coyote or wolf.
esha ton-ub: wolf berry.

he-quip-o-seh: wind plant.
he-vee-nah-tiz-uah: sore throat medicine.
ka-sigh-yah-gava: little round blossoms.
ki-bah: mountain.
ki-bah pah-quanna-av: mountain water mint, or literally - mountain water smell.
ki-ee-vah: mountain.
kuh-eeb: squirrel or chipmunk.
kuh-eeb tah-kuh-no-quah: squirrel food.
mo-gu: thorny.
mo-gu see-ab-boo-e: thorny berry.
moh-ah: old time, or long ago.
moh-ah na-tiz-u-wabbe: literally - old time medicine plant: meaning - medicine plants of early days.
nah-cah na-tizuah: ear medicine.
nah-cah nooma: earache.
nah-who-goo-e-duh: whooping cough.
na-tizuah: medicine.
na-tiz-u-wabbe: plant used for medicine.
natz-see-kah na-tizuah: cut, or wound medicine.
nay-hoo: burns.
neu-muh: stomach.
neu-muh nooma: stomach pain.
neu-muh nooma baddo na-tizuah: medicine to wash out stomach pain.
neut-see-quah na-tizuah: medicine to drive out pain.
nooma: pain.
no-roop-pah-wah: diptheria.
nut-tiz-u-ah: medicine; a variant of na-tizuah.
oh-diz-uh: rat food.
oh-ha: yellow.
oh-ha quee-dah: yellow color.
oh-hee: cough, or cold.
oh-hee-bah na-tizuah: cough, or cold medicine.
oh-hoe-buh: hard.
oh-hoe-buh wah-hava: hard grass.
oh-na: rock.
oh-na nut-tiz-u-wabbe: rock-plant medicine.
oy-ee na-tizuah: emetic medicine.
pah-bah-uh-avva: spots all over, i.e., meaning - smallpox.
pah-tee-dah-wit: roots for food.
pah-wah na-tizuah: swelling medicine.
pah-wah-gah-bish: plant growing around springs.
pah-wha: boils.
pah-wha na-tizuah: boil medicine.
par-o-wah: bear.
par-o-wah tah-cun-o-quah: bear food.
pee-ee-ah-gub: cotton root; name applied to Lygodesmia.
pee-havvie: sugar.
pee-shik-cah-mah: it tastes good.
pee-tuk-quah: roots.
pee-wit-tah-oy-vah: tuberculosis.

poo-ee-bah-hoon: green tobacco.
poo-ee-quee-dah: green color.
poo-gooey rup: horse tongue plant.
poo-heg-wee-dah: blue color.
puh-hee: hairy.
puh-hee ah-kuh: hairy sunflower.
quee-dah: color.
quee-dutz: constipation.
quee-nat-zee: little bird.
quoh-nudz-uh: venereal disease.
quoh-quavvie: sugar.
sah-nah: gummy.
sah-nah tonegan: gummy flower.
see-gupe: a general term applied to shrubby plants with yellow flowers, such as Tetradymia.
see-quee-dah: gray color.
soy-noy-e tah-cun-oh-quah: humming bird food.
spee-gee nooma: headache.
suh-bah: chills.
suh-e-wee: willow.
suh-quee-dah: red color.
tah-cun-e-quah: food.
tah-rah-gee-noob: that which pops when stepped on. A term applied to plants with inflated fruits, such as Astragalus and Physaria.
todse, or toh-see: white.
todse-tonega: white flower.
toh-see ten-ava: white roots.
toh-gowah dama: snake tooth, a name applied to curved white spines of Tetradymia.
wadda-e-gop: chipmunk tongue.
wah-hava: grass.
whood-see tah-cun-oh-quah: sagehen food.
who-quee-dah: black color.

SHOSHONE

ah-kuh: general term for sunflower group, especially those having edible seed.
ahn-nah-da: physic.
ahn-na-da nut-zoo: physic medicine.
ahn-nut-zoo: toothache medicine.
andra-vitch qwanna: wild Indian smell.
ash-ah nut-zoo: it is medicine.
bah: water.
bah-dib-ah: water nuts.
bah gah: juice.
bah-gah tu-boh-nemba: juice to write with, applied to fruits of Smilacina.

bah-sah-mup: water cedar.
bah sa-ma-be: water juniper.
bah wah-do-roh: water whistle.
bas-ah-oh-hee: tubercular cough.
bas-un-dook: tuberculosis.
bay-quee nut-zoo: swelling medicine.
be-ah: big.
be-ah ning-ee: big ears.
be-ah soon-gah: big thorny plant.
bee-sha wannup: milk hemp or string.
bee-wah: stomach.
be-heu-ah nut-zoo: heart medicine.
boh-hobe: a name for the big sagebrush, Artemisia tridentata.
bom-bee: head.
bom-bee gum-bah nut-zoo: headache medicine.
boo-ee nut-zoo: eye medicine.
boo-eep nut-zoo: gall medicine.
booie: blue.
booie betah: blue color.
boo-see-ah nut-zoo: head lice medicine.
buh nut-zoo: blood medicine.
buh-quoy-hoy: bloody diarrhea.
combu: rabbit.
combu-tah-sum-beh: rabbit foot.
coo-see: gray or dusty.
coo-see hoop-ie: gray stick.
coo-see too-roombe: gray tea plant.
dag-e-boh nut-zoo: kidney medicine.
dah-wahgum-bah: toothache.
das-e-ah: smallpox.
dimbe: rock.
dimbe see-bup-ee: rock brush.
dogowah: rattlesnake.
doh-numb nut-zoo: neck medicine.
doo be-tah: black color.
doot-see-ab: chipmunk food.
dosa: white.
dosa be-tah: white color.
dosa hop-ee: white wood.
dosa koy-ah: white top.
dosa toy-yah: white mountain.
du-boh-hobe: little sagebrush.
du-ee-nah: rheumatism.
duh-dah: little.
duh-na-ee-go: dinner tongue - meaning to vomit.
du-hu: shrub or brush.
ee-wah hu-binga: morning flower.
ek-wee mutz-so-y-noo-ee: blue flowers hanging down.
enga be-tah: red color.
enga mo-wanya: red flowers.
enga pah wee-ub: red plant.

esha: coyote.
esha wannup: coyote snare.
eshan-div-o-wip: just weeds.
goop-pah-joom-bah: squeaky teeth.
hu-binga: flower.
huh-nabbe: fuzzy plant.
i-etz: bluebird, a name applied to the Duckwater band of Shoshones.
ip-ooie hu-binga: sleeping flower.
kah: rat.
kah-quas-ee: rat tail.
kah-seep: rat urine.
kay nut-zoo: no or not medicine.
mo-goon du-hu: thorny brush.
mogu see-am-boo-e du-hu: thorny brush berries.
mo-wanya: flower.
mo-weng: flower head hanging down.
mutz-so-y-noo-ee: flowers hanging on each side of stem.
nah-gah-ha: little.
nah-gee: ear.
nas-ee-kah nut-zoo: cut medicine.
new-ha: Indian.
new-wha bah-hoon: Indian tobacco.
new-wha-no-ko nut-zoo: liver plant medicine.
ning-ee: ear.
nut-tah-zoom: medicine.
nut-zoo: medicine.
oh-ha: yellow.
oh-ha tone-zee-ah: yellow headed flowers.
oh-hee: cough.
oh-hee nut-zoo: cough medicine.
oh-sah-rum-boh-zip: wind house plant.
pah: water.
pah-gah-dah-bohn-ub: basket marker dye.
pah-quanna: water smell or odor, a name applied to the mints.
pah-see-go: water lily.
pah-wah: boils.
pah-wah nut-zoo: boil medicine.
pee-gee wanna: milk hemp, or string, a term applied to milkweeds.
quanna: smell or odor.
quee-dah nut-zoo: physic medicine.
quee-duh-quanna: strong nauseous odor.
quee-ja-ho hu-binga: whistle flower, applied to Equisetum.
quoy-hee nut-zoo: stomach medicine.
sag-gee-gee: rattle pod seed.
sah-nah: gummy, sticky.
sah-nah cav-oh-no-ah: gummy heads.
sa-ma-be: juniper.
see-bup-ee: brush or shrub.
see nut-zoo: foot medicine.
see-vah sun-e-quoh: rubber gum.
so-go: ground.

so-go ah-so-bin: ground flower.
so-go ron-zee-ah: ground plant.
sohn-go nut-zoo: lung medicine.
soh-nip: grass.
sun-ee-quoh: chewing gum.
tah-cah-ve: snow.
tah-cah-ve hoopie: snow brush.
tah-cah-ve toy-yah: snow mountain.
tah-vah see-go: poison lily.
tah-vee sun-ee-quoh: cotton gum.
tim-bah-hay: bad disease, venereal disease.
ting-wee-buh: rock smoke, a name for Chamaebatiaria.
toh-doe-quah bee-zip: snake paint.
toh-gowah dama: snake teeth.
toh-no-bah: place of greasewood and water, i.e., Tonopah.
toh-sahn-ah-boh-kip: plant where the wind lives.
toh-sav-ee shoshone: meaning white-knife Shoshone, an Owyhee band of the tribe.
too-coo-bug-um: arrow.
tot-zip: dense or thick brush.
toya-abba-hobe: mountain brush.
toy-yah: mountain.
toy-yah pah-gah-dit: mountain lakes.
toy-yah-pah-quanna: mountain water mint.
toy-yah-tim-bah-zip: mountain rock plant.
tu-ba: pine nuts.
tu-ba de-ka: pine nut eaters.
tuh-cup: food.
tu-vah-sah: woman without children, i.e., sterile.
uah nut-zoo: wound medicine.
wanda-vah-sah: woman without children.
wanna: hemp, string, or snare.
wannup: hemp or string, also means snare.
wee-gah zah-moh-nee-ah: plant that sticks to blankets.
wee-pah: rain water.
wee-ub: plant.
wenna-zoh see-bup-ee: comb brush.
who-gee-jup: strong poles.
witch-ah soh-oh: sagehen cheeks.
wit-toy nut-zoo: emetic medicine.
wong-govie: lumber tree.
wuh-toy-ee nut-zoo: emetic medicine.
wya nut-zoo: burn medicine.
zahn-be nut-zoo: good medicine.

WASHOE

auga: mountain sheep.
auga lem-lu: mountain sheep food.

bahn-kos: smoke.
bah-hah mo-mo: white round balls, as applied to flowers of Angelica.
dah-la-ak: mountain.
dah-o-pah-phy-lo: a flower, any flower.
dah-po-poy-ee: white color.
dah-zat-so me: green color.
del-he-wee: thunder.
del-lay-leg-ee: red color.
del-moo-eh: valley.
dim-ah: water.
dim-ah dah-goosh: water plant.
mood-zuck: medicine.
mushaga-moh-bah: bear blanket.
oo-chu-lee: chipmunk.
oo-chu-lee mah-too: chipmunk tongue.
poh-lo-pee-soh: wood rat ear.
tee-daoh: roots of a plant.

ACKNOWLEDGMENTS

Mrs. Agnes Train (Janssen) is to be particularly commened for her constant and tireless assistance in gathering the original information from the Indians, in the preparation of this paper, and especially for writing the introduction.

The deepest appreciation is expressed also to the following people and institutions for their continued encouragement, cooperation, and assistance in many ways: the Bureau of Plant Industry and particularly its botanical staff in the Division of Plant Exploration and Introduction; Miss Alida C. Bowler, formerly Superintendent of the Carson Indian Agency at Stewart; Dr. P. A. Lehenbauer and Dr. Dwight Billings, of the Botany staff of the University of Nevada; Mr. Raines Miller, Toxicologist of the University of Nevada Agricultural Experiment Station; the staff of the University of Nevada Agricultural Experiment Station, for the loan of herbarium material; the United States Forest Service, and especially to their agents, for courtesies extended to our collectors in the field; the National Youth Administration; the staff of the Reno Work Projects Administration, who have displayed such keen interest in the preparation of this paper.

Special credit is due to numerous members of the tribes of Nevada for revealing prized and secret medicinal remedies, and for their whole-hearted support, which has made possible these studies.

EXPLANATION OF ABBREVIATIONS AND SYMBOLS

(E) - English; (Moapa P) - Moapa Paiute; (P) - Paiute; (S) - Shoshone; (W) - Washoe.

CHANGES IN SCIENTIFIC NAMES

(*) The asterisks appearing in the text after some of the plant names indicate changes which have occurred since the original publication in 1941. The list follows.

Argemone hispida A. Gray = A. platyceras Link & Otto
Asclepias cryptoceras S. Wats. = A. fascicularis Decne.
Astragulus scaposus A. Gray = A. calycosus var. scaposus (Gray) Jones
Cicuta occidentalis Greene = C. douglasii (DC.) Coult. & Rose
Crepis scopulorum Coville = C. modocensis Greene
Gilia aggregata (Pursh) Spreng. = Ipomopsis aggregata (Pursh) V. Grant
Gilia congesta Hook. = Ipomopsis congesta (Hook.) V. Grant
Gilia eremica var. arizonica Craig = Eriastrum eremicum (Jeps.) Mason
Gilia eremica var. zionis Craig = Eriastrum eremicum (Jeps.) Mason
Gilia filifolia var. sparsiflora (Eastw.) Macbr. = Eriastrum sparsiflorum (Eastw.) Mason.
Gilia pungens (Torr.) Benth. = Leptodactylon pungens (Torr.) Nutt.
Grindelia squarrosa (Pursh) Dunal = G. squarrosa var. serrulata (Rydb.) Steyerm.
Juniperus utahensis (Englem.) Lemmon = J. osteosperma (Torr.) Little
Leptotaenia multifida Nutt. = Lomatium dissectum var. multifidum (Nutt.) Math. & Const.
Ligusticum filicinum S. Wats. = L. porteri var. brevilobum (Rydb.) Math. & Const.
Orobanche californica Cham. & Schlecht. = O. californica var. corymbosa (Rydb.) Munz.
Parrya menziesii (Hook.) Greene = Phoenicaulis cheiranthoides Nutt.
Porophyllum leucospermum Greene = P. gracile Benth.
Solanum villosum Mill. = S. sarachoides Sendt.
Suaeda torreyana var. ramosissima (Standl.) Munz = S. ramosissima (Standl.) Johnst.

MEDICINAL USES OF PLANTS

ABIES CONCOLOR Lindl. Pinaceae

(P) ca-ta-vee. (S) wong-govie. (W) mah-hah-wa; shaw-wa-eh. (E) white fir.

The soft resin from the bark is eaten to cure tuberculosis. The dose being a teaspoonful daily (Reno - P & W) or a little each day until cured (Gardnerville & Dresslerville - W)

The pitch is warmed and used as a poultice for sores (Wells - S), applied to boils (Wells - S), or mixed with Psathyrotes ramosissima for the same purpose (Fallon - S). The fresh pitch is applied to cuts and then covered with a bandage (Reno - P).

The boiled bark infusion is drunk freely instead of water for tuberculosis (Reno - P & W).

A tea from the needles, taken internally, is valued in pulmonary troubles and often the resin from the bark is added to the brew (Owyhee - P & S).

For venereal disease treatment see under Juniperus utahensis.

ABRONIA TURBINATA Torr. Nyctaginaceae

(S) nut-zooh-boh-hombe. (E) white sand verbena.

A poultice of mashed leaves can be used for swellings (Austin - S).

ABRONIA VILLOSA S. Wats. Nyctaginaceae

(S) bah-gun-boh-hombe. (E) pink sand verbena.

The roots are mashed and applied as a moist poultice for burns (Lida - S).

ACHILLEA LANULOSA Nutt. Compositae

(P) todze-tonega; toe-tee-tone-ga; toh-tee-tone-e-gah; toh-tee-tonega; wats-ov. (S) coo-see-pah-wah-zip; dogowah-wan-guh;

donzee-anga; pah-ronzee-ah. (W) wem-see. (E) yarrow.

The inflorescence is boiled and the tea taken in small doses to relieve stomach-ache or indigestion (Ruby Valley and Upper Reese River - S), or used as a wash for itch or as a liniment for muscular pains (Battle Mountain - S).

A poultice of mashed leaves is applied on swellings or sores (Duck Valley, Reno, Schurz, and Smith Valley - P, S & W), or as a compress for headaches (Smith Valley - P), also the boiled leaves serve as a poultice for collar sores on horses (Ft. McDermitt - P. A solution of boiled leaves is used as a wash for fevers (Yerington - P), or, when strained, as drops for sore eyes (Ft. McDermitt - P). The leaf decoction is taken internally for colic or dyspepsia (Reese River - S), or in quantities of less than a teaspoonful at a time over a period of several hours, for headaches (Wells and Yerington - P & S).

In a single instance it was reported that the green leaves could be chewed to relieve toothaches (Duck Valley - P & S) but in many localities the Paiutes and Shoshones prefer the root for that purpose, the more common method being to insert a small portion in the tooth cavity. Another method is to mash the root so that the pulp can be inserted in the hollow tooth or else placed along the inflamed area. In one community the root is dried and pulverized before using (Summit Lake - P) although some of the Indians here now prefer Sloan's Liniment in place of the old remedy. Sometimes the roots are boiled and the hot solution used as a wash along the jaws to relieve the pain of toothaches (Lovelock - P). Some of the Indians believe the continued use of the root will kill the nerve of an ulcerated tooth (Austin, Elko, and Owyhee - P & S).

The root is sometimes chewed for colds (Nixon - P), or when boiled the solution is taken for gas pains and is believed to be good for the kidneys (Owyhee - P).

One family employs the root substance as a local anaesthetic (Winnemucca - S). They cited an experience of one of the men who had received a deep cut in the thigh. It was certain that foreign matter had been embedded in the wound, but due to the intense pain the wound could not be opened. So there was applied a dressing of fresh roots which had been mashed to a pulp. After a half hour the wound was opened and cleaned without causing undue pain to the patient. The same family always employs a preliminary soaking in a solution of boiled roots to assist the extraction of deeply embedded splinters.

The entire plant can be boiled and used as a poultice for pains or for sores (Elko, Ft. McDermitt, and Owyhee - P & S), or the mashed green plant serves as a dressing to reduce swellings (Ruby Valley - P).

The solution from the plant is used as a liniment or as a wash for sores or rashes (Duck Valley, Ft. McDermitt, and Schurz - P & S). It also serves to disinfect cuts and saddle sores on horses (Ft. McDermitt - P).

The plant decoction is taken internally, a cupful twice daily, as a blood tonic after childbirth, and for bladder ailments (Ft. McDermitt and Owyhee - P). It is given also for colds, to stop diarrhea (Beowawe - S) and for upset stomach (Stillwater - S).

The crushed green plant was smelled to relieve headaches (Duck Valley - P & S).

For treatment of gonorrhea see under Leptotaenia multifida.

AGASTACHE URTICIFOLIA (Benth.) Kuntze — Menthaceae

(P) kibah-pah-quanna-ah; kibah-pah-quanna-av; pah-quanna.
(S) toya-pah-quanna; wee-yah. (E) horse mint.

A cold water infusion of the leaves is used for indigestion and stomach pains (Winnemucca - P); while the boiled plant is taken as a tea for colds (Schurz - P) and as a physic (Owyhee - S).

The mashed leaves are made into a poultice for swellings (Fallon - P).

AMELANCHIER UTAHENSIS Koehne — Rosaceae

(S) duh-hee yemba. (E) service berry.

For snowblindness the green, inner bark is boiled with sugar. When cool, one drop of the solution is placed in each eye, three times daily. The solution is sometimes made by boiling the roots and inner bark together (Wells - S).

ANEMOPSIS CALIFORNICA (Nutt.) H. & A. — Saururaceae

(Moapa P) cheu-pahn-iv. (S) chew-pon-iv. (E) yerba mansa.

The leaves are boiled in a quantity of water and used as a bath for muscular pains and for sore feet (Moapa - P).

The mashed roots are boiled to make a poultice for swellings,

or the decoctions used as an antiseptic wash (Beatty - S).

A tea from the boiled roots is taken for stomach-ache (Beatty and Tonopah - S) or more commonly as a tonic for general debility following colds (Beatty and Tonopah - S). For this latter purpose, one woman has a special preparation (Lida - S). She dries the roots, then roasts and browns them before preparing the decoction. One-half to a cup of the brew is taken daily.

There was one report of using the boiled plant as a tea in the treatment of gonorrhea (Beatty - S).

ANGELICA BREWERI A. Gray — Umbelliferae

(P) bogo (S) bee-ah-bogo; be-ah boquah. (W) dah-hah-mo-mo dah-o-pah-phu-le.

The root of this plant has general use throughout the State in the treatment of colds or chest ailments. It is sometimes collected in the fall and saved through the winter. A tea from the boiled roots, usually taken hot, is used for colds (Austin, Battle Mountain, Dresslerville, Elko, Gardnerville, Reno, and Wells - P & S). One preparation for severe cough or heavy chest colds is made by boiling the root with a little whiskey, and this is taken hot, one teaspoonful several times a day (Ruby Valley - S). Sometimes the root is dried, shaved fine, and smoked in cigarettes, especially for head colds (Ruby Valley and Wells - S). For tuberculosis a decoction of boiled roots is taken over a long period of time (Round Mountain - S). As a bronchitis remedy the root is dried and scraped, the pieces then soaked in water but not boiled. The solution is given a few teaspoonfuls at a time, twice a day, over a period of two weeks (Gardnerville and Dresslerville - W). As an influenza specific it is taken frequently as tea. To improve the flavor it may be mixed with the root of Leptotaenia multifida (Minden - W). For whooping cough the split root is covered with whiskey and boiled, the dose being one-half teaspoonful for children (Ruby Mountain - S). As a tonic the decoction is taken hot as a tea in small doses of one-half cupful or less, three times a day (Battle Mountain - S). Small pieces of the dried root are chewed for sore throat or coughs (Dresslerville, Gardnerville, Fallon, and Reno - P & W).

The big roots are pulped and applied as a poultice for pneumonia and the same preparation serves in the case of rheumatic pains or swellings (Elko - S); for cuts and sores the root is mashed and smeared on, a bandage being used if necessary (Reno - P).

In kidney ailments a cupful of roots is boiled in a gallon of water and the patient uses this instead of drinking water (Reno - P). For venereal diseases the root decoction is taken in small

quantities, the solution serving also as a cleansing wash (Ruby Valley and Wells - S).

To cure horse distemper see under Leptotaenia multifida.

ANGELICA sp. (?) Umbelliferae

(P) kibah na-tizuah.

The roots seen obviously belonged to an umbelliferous plant. The Indians said that it grows in the Sweetwater Mountains.

The material is used to cure colds in much the manner as Leptotaenia multifida, that is by drinking a boiled tea, chewing the raw roots, or smoking dried bits in cigarettes (Yerington).

APLOPAPPUS NANUS (Nutt.) D. C. Eat. Compositae

(P) oh-diz-uh; see-gup-ee; tah-bah-she-up. (S) dim-be-see-bup-ee; dimbe-tah-ba-she-bupe; timba-wop; (E) goldenweed.

The flowering tops are boiled and one-half cupful of the solution taken to stop stomach-ache or stomach cramps (Upper Reese River - S); the flowering heads and the stems, boiled together, are used for coughs and colds (Schurz and Manhattan - P & S). The stems alone, are boiled for a decoction which is taken hot for colds (Winnemucca - P). The whole plant is boiled and the solution taken for severe colds. (Upper Reese River - S), for grippe and high fever (Austin - P), for stomach trouble or to stop diarrhea (Owyhee - P).

APLOPPAPUS STENOPHYLLUS A. Gray Compositae

(P) sana-abu. (S) poo-hee na-tizuah. (E) goldenweed.

The roots are boiled and used as a wash for sore eyes (Ft. McDermitt - P & S).

AQUILEGIA FORMOSA Fisch. Ranunculaceae

(P) enga-moh-wanya; pah-wah-cub; pah-wah-gah-bish; pah-wah-gumb. (S) enga-moo-y-nee; enga-moh-wanya; enga-mutz-oh-wanna; pah-wah-gum; pam-i-ooh. (E) columbine.

The ripe seed are mashed, moistened, and then rubbed vigorously in the hair to discourage head lice (Lida - S). Maggie Shaw says that Death Valley Indians of California use the plant in the same manner.

The boiled roots are used as a tea to stop diarrhea (Wells and Battle Mountain - S), for stomach-aches (Wells - S), and as a cough remedy (Summit Lake - P). The fresh roots are mashed and rubbed briskly on aching rheumatic joints (Fallon - P).

The roots and leaves are boiled together and the decoction taken in doses of one-half cupful several times daily for one or two days to counteract dizziness or for biliousness (Manhattan - S).

The roots of this plant are boiled with those of Gilia aggregata, the resulting brew being used to induce vomiting (Stillwater - S).

The whole plant, boiled, serves as a remedy for venereal diseases, the decoction being taken in small doses, three times daily (Wells - S).

ARABIS PUBERULA Nutt. Cruciferae

(S) don-zeah. (E) rockcress.

The crushed plant serves as a liniment or as a mustard plaster (Owyhee and Elko - S).

ARCTOSTAPHYLOS PATULA Greene Ericaceae

(S) yah-he-wat-um. (E) green manzanita.

Leaves are boiled and the solution drunk for venereal disease (Beatty - S).

ARENARIA ACULEATA S. Wats. Caryophyllaceae

(S) boo-ee nut-zoo. (E) sandwort.

A solution of boiled roots serves as an eyewash (Beatty - S).

ARGEMONE PLATYCERAS Link & Otto — Papaveraceae

(P) esha-ah-goo-wha; seg-quoh-ha. (S) sag-ee-da; sag-ee-dump; wya-sag-wee-duh; wya-sag-gee-gee. (E) prickly poppy.

The root is warmed, mashed, and applied on gums or inserted in tooth cavities to relieve toothache; or it can be applied as warm poultice in a cloth against the jaws for the same purpose (Elko - S). The more general use is to grind the ripe seed to an oily paste to make a salve for burns, sores or cuts (Battle Mountain, Dresslerville, Elko, Eureka, Gardnerville, Monitor Valley, Ruby Valley, Tonopah, Upper Reese River, Wells, and Yerington - P, S & W). In one preparation the seed are cooked before grinding into a paste to be used as a poultice to bring boils to a head (Ruby Valley - S). As an emetic and physic the ripe seed are roasted, finely mashed and taken as a dose of one teaspoonful (Lida - S); as a physic only the ripe seed are roasted, ground finely, and rolled into tiny pills, two or three of these serving as a dose (Beatty - S); but sometimes the dosage is one or two teaspoonfuls of the powdered substance (Tonopah - S). The seed are ground and made into a tea to be used as a wash for eye soreness (Austin - S); head lice are killed by using ripe seed which have been pulverized and moistened, the paste then being rubbed into the hair (Tonopah - S).

ARTEMISIA DOUGLASIANA Besser — Compositae

(P) wadzo-ba. (W) paal-luwe-it. (E) sagebrush.

The plants are burned over a fire and the fumes inhaled for the grippe (Reno - P); the crushed green leaves are made into compresses for headache (Reno - P) or the boiled leaves can be used as a wash for the same purpose (Reno - W); for rheumatism the boiled leaves are applied as a liniment (Reno - W).

ARTEMISIA DRACUNCULOIDES Pursh — Compositae

(P) coo-see wah-aba; pah-wat-sov; wat-sov. (S) bah-wah-zip; bav-oh-hoe-be; enga-pah-wah-ga; pah-wah-zip; pava-hobe. (E) sagebrush.

The tops of the plant are boiled or heated on a stove and used as a hot poultice for sprains, swellings or rheumatism (Lovelock and Yerington - P); or the green plant is pulped and used as a poultice for sore throats or neck glands (Stillwater - S).

A hot solution made from boiled branches serves as a wash to relieve rheumatism (Yerington - P), or the liquid is taken internal-

ly for colds and as a physic (Ely - S).

The whole plant is boiled to prepare a decoction which is drunk three times daily or used as a wash for venereal diseases (Beatty - S). The same liquid is taken as a tonic after childbirth is doses of a half-cupful once a day for a week (Winnemucca - P). Used externally the solution was said to relieve nettle stings (Battle Mountain - S).

Tom Pabawenas uses steam from the boiling plant to relieve eye trouble, by placing a towel over his head and allowing the steam to come into his face for short periods (Wells - S).

ARTEMISIA GNAPHALODES Nutt. Compositae

(P) coo-see pah-wah-zip; coo-see quatz-oh-bah; coo-see-sah-wah-be; coo-see sah-wavvy; coo-see-wy-up; koh-see-wah-ah; pah-wadz-oh-buh; wat-sob; wat-so-vah; whood-see-tah-cun-oh-quah; (S) bah-vah-hoe-be; bav-oh-hoe; coo-see-pah-zip; coo-see-pah-wah-zip; pah-vah-hobe: pava-hobe. (W) auga-lem-lu. (E) sage-brush; western mugwort.

A boiled leaf decoction is an internal treatment for heavy colds, head colds, coughs, and headaches (Dresslerville, Gardnerville, Manhattan, Peavine Creek, and Wells - S & W). The solution is used also as a cooling, aromatic wash for headaches (Dresslerville - W). The leaves are mixed with pitch of Pinus monophylla, boiled and the decoction taken for coughs (Wells - S). The branches are boiled slightly and the tea taken hot in small doses for coughs and colds (Beowawe - S).

The tops of the Artemisia mixed with the roots of Osmorhiza occidentalis are boiled and the resulting liquid taken as a warm or hot drink for coughs (Ruby Valley - S). The tops alone are boiled as a remedy for colds and taken hot in amounts less than one-half cupful at a time for severe infections (Elko and Wells - S), or one big teaspoonful several times daily (Ruby Valley - S). The roots and tops are employed in a hot drink to cure heavy colds (Smoky Valley - S), and the whole plant is boiled for a cough remedy (Ruby Valley - S). The whole plant boiled with Osmorhiza occidentalis roots is used as a decoction in small doses, taken hot, for coughs, heavy colds, and fevers (Wells - S). It is interesting to note that one woman grows the plant near her house and gathers material to dry and store for winter use (Ely - S). See also under Chrysothamnus nauseosus var. speciosus.

There is a rather general employment of the plant as a regulator of menstrual disorders in women or girls, the usual remedy consisting of a hot tea made from fresh or dried leaves (Austin, Beo-

wawe, Elko, Owyhee, Reese River, and Winnemucca - P & S). A steam bath is made of the plant for young girls reaching maturity (Elko - S). A tea from boiled roots or the entire plant is given as a tonic after childbirth, the quantity of liquid taken varying from two to three cupfuls a day and extending over a period of two weeks to a month or more (Ft. McDermitt, Summit Lake, and Winnemucca - P).

A tea for influenza is made by boiling the branches (Lovelock - S), or a steam bath is employed to sweat out the infection, the patient being covered with blankets and placed on a layer of branches which are smoldering on a bed of coals (Schurz - P). The same sort of a sweat bath serves also in the treatment of rheumatism (Schurz - P), or poultices of steamed plants, or merely bruised leaves are applied to rheumatic or aching portions of the body (Battle Mountain, Summit Lake, and Owyhee - P). A leaf decoction for an eyewash was reported once (Nixon - P), or again merely an infusion made with cold water (Beowawe - S).

For swellings, boils, and sores, a poultice of fresh moist leaves is employed (Smith Valley - P), or else the stems and leaves are bruised and applied in the same way (Yerington - P). The whole plant is boiled and used as a healing wash for rash, itch or any skin eruption (Upper Reese River and Winnemucca - P & S); to relieve aching, feet are soaked in water in which the plant has been boiled (Yerington - P).

To stop diarrhea, the whole plant is boiled and a cupful of the solution taken (Manhattan - S) or only the tops are boiled and the tea taken in a dose of one-half cupful (Fallon - P). For stomachaches the whole plant, or the young growth only, is boiled and the tea taken hot, or cold (Ely and Upper Reese River - P & S). The same solution is used as a physic (Stillwater - S). The boiled tops are used to make a tea which is considered effective, when taken over a long period, in the treatment of venereal diseases (Fallon and Lovelock - P).

To dye hair black, a solution of the boiled plant was combed into the hair every day (Lovelock - P).

The steeped leaves are made into compresses for headaches and fevers (Reno - P), in this last respect being especially suitable for babies (Owyhee - P & S).

ARTEMISIA NOVA A. Nels. Compositae

(S) bah-que-numb; boh-hoe-be; du-boh-hobe; toyabe-behobe.
(E) chicken sage; small sagebrush.

Boiled leaves are taken as a tea for coughs and colds (Tonopah

and Upper Reese River - S).

ARTEMISIA SPINESCENS D. C. Eat. Compositae

(P) kuh-eeb tah-cun-oh-guah; kuh-wepit-tuh-cun-o-guah. (S) doot-see-ab; dootsie-up; koo-buh tah-cun-o-quah; ku-ba-tah-cun-oh-quah. (E) bud sage; button brush.

The more common use of the plant is as a poultice for swellings, and most frequently, among the Paiutes at least, the green leaves are mashed for the purpose (Fallon and Schurz - P); or again it is the young branches which are used (Elko, Hawthorne, Smith Valley, and Winnemucca - P).

A poultice of the whole plant, either fresh or boiled, serves for a wide range of minor ailments such as rash and itch (Elko - S). The green leaves are mixed and mashed with commercial chewing tobacco to rub or smear on sores or bruises (Reno - P); old bedridden people are rubbed every day with a handful of the green leaves to prevent bed sores (Schurz - P). The mashed green leaves serve to draw out boils (Schurz - P).

To stop haemorrhages, especially those due to tuberculosis, the boiled branches are made into a tea which is taken cool in a dose of about a half-cupful (Wells - S); for the same purpose, the leaves and flowers are boiled, strained, and taken as a hot tea to the quantity of a half-cupful (Fallon - P); also the decoction is sniffed up the nostrils to stop nosebleed (Wells - S).

As a wash, the stems and leaves are boiled and used for rheumatism (Nixon - P); or the leaves alone are crushed, moistened with water, and rubbed onto the skin for irritation and rashes (Ely - S). For influenza the whole plant is boiled and taken as a tea and also used as an external wash (Wells - S). For chest congestions, coughs, or colds, the root is boiled and taken as a hot tea in doses of less than a half-cupful (Yerington - P).

For severe stoppage of the bladder, fresh flowers and leaves are boiled and the tea taken when cool (Fallon and Ft. McDermitt - P). To relieve chronic stomach troubles, cramps or indigestion, small doses of tea made from boiled branches are taken (Lovelock and Smith Valley - P).

ARTEMISIA TRIDENTATA Nutt. Compositae

(P) pah-eesh sah-wavvy; pah-hoe-be; pah-wavvy; sah-wah-be; sah-wavvy. (S) bah-guh-yoom; bah-hoe-be; bah-vah-hoe-be; boh-hoe-

be; boh-ombe;sah-wah-be; wah-gup-pee. (W) da-bel; tah-bul. (E) big sagebrush.

This plant, next to Leptotaenia multifida, is the most widely used in the State and most commonly employed in the treatment of colds. In many settlements the boiled green leaves are made into a hot tea for that purpose, although in some places it may be taken cold (Round Mountain - S) or the leaves are eaten raw (Owyhee and Nixon - P & S). The usual dose of the tea seems to be half-cupful taken several times a day (Gardnerville, Dresslerville, Lovelock, Belmont, and Ruby Valley - P, S & W).

The tops, rather than the leaves, are usually preferred, and in this preparation it is sometimes recommended that the first water be discarded using only the second water for the tea (Battle Mountain and Wells - S); in fact, some Indians claim that the tea should not be bitter, and also caution that an overdose acts as an emetic (Belmont - S). One woman collects branches with flowers and leaves to dry and store for the winter, and she prepares a cough remedy by boiling a handful of the material, in water to cover, with a little salt added (Ruby Valley - S). Again the proportions of the dried substance may be only a pinch to a cup of water (Yerington - P). For head colds the branches are burned on top of the stove and the fumes are inhaled (Smith Valley - P). The green leaves may be mashed and applied as a poultice for chest colds (Reno - P). The tea for colds can be prepared also by boiling the tops of this plant with the roots of Leptotaenia multifida (Fallon - P) or with young twigs of Juniperus utahensis (Austin, Lovelock, and Reese River - P & S).

In a reliable cure for pneumonia, the leaves are boiled in water with a pinch of salt and a tablespoonful of the warm solution is given each time the patient coughs (Tonopah - S). In another treatment for the disease the leaves are boiled with the root of Leptotaenia multifida and the hot tea taken internally, also hot packs of the solution are placed upon the chest (Lovelock - P).

Branches are burned on the top of the stove as a fumigant for rooms after an illness or the basket and blankets used during a childbirth are held in the smoke (Gardnerville and Dresslerville - W).

All three tribes of the Indians favor the tea brew as a general tonic (Austin, Dresslerville, Gardnerville, Lovelock, and Owyhee - P, S & W) and it is especially favorable after childbirth (Fallon, Reno, Schurz, and Yerington - P & S).

There are various methods to relieve headaches: a tea from the boiled branches is taken internally (Hawthorne and Schurz - P), the solution from the boiled leaves is used to bathe the head (Monitor Valley - S), or fumes from burning plants may be inhaled (Fallon - P). Also recommended is the use of crushed and moistened green

leaves applied as poultices directly on the forehead (Upper Reese River - S).

The branches are boiled to make a tea to relieve stomach-aches (Hawthorne and Schurz - P), it is favored especially for children (Fallon - P). A half-cupful of the hot solution is given for stomach cramps (Wells - S). Sometimes the raw leaves are chewed for indigestion (Beatty and Owyhee - P & S).

To break a fever by producing a sweat, one-half cupful of the tea from boiled leaves is supposed to be effective (Elko and Owyhee - S); and for malarial fever a small quantity is taken three times daily (Reno - P).

For cuts, wounds or sores the boiled leaves are made into an antiseptic wash (Fallon, Lida, and Owyhee - P & S) or applied directly as a poultice (Wells - S) or the branches may be dried, pulverized and applied as a healing powder (Battle Mountain - S). The steeped leaves can be applied as a wet dressing to promote healing of stubborn bullet wounds (Yerington - P). The leaf decoction is used warm, as an antiseptic bath for newborn babies (Tonopah - S).

The plant, in addition, has a considerable range of application for other purposes: the boiled branches serve as hot poultices for various aches and pains, especially rheumatism (Wells - S); or the decoction, used hot, makes a good wash or liniment for lumbago or muscular cramps (Fallon and Upper Reese River - P & S); or to alleviate red ant bites (Upper Reese River - S), also as a foot bath for aching and swollen feet if continued for several hours (Smith Valley - P).

The strained liquor from boiled leaves can be used as a gargle for sore throat (Upper Reese River - S). Leaves steeped in hot water are laid directly on inflamed eyes (Ruby Valley - S); mashed leaves are applied along the cheek next to the gums to stop a toothache (Upper Reese River - S). For poisoning of any sort the tea is taken internally or if no water available the leaves can be chewed (Reno - S).

A rather novel employment occurs where the dried leaves are finely pulverized to serve as a sort of talcum powder for babies (Ft. McDermitt, Stewart, and Winnemucca - P).

ASCLEPIAS CRYPTOCERAS S. Wats. (*) Asclepiadaceae

(P) hewovey; wa-na. (E) milkweed.

The boiled root provides a solution used as a wash to relieve headaches (Nixon - P).

The latex is employed to cure ringworm (Stewart - P).

ASCLEPIAS SPECIOSA Torr. Asclepiadaceae

(P) nah-quee-dah nat-tizuah; toh-hawk-quee; ut-sah-av; wee-ab-a-nuh. (S) be-ah bee-sha divo-oh-wip; be-jah-no-ko; be-sha-no-ko; bee-sha-wannup; pee-gee-wanna. (E) milkweed.

The latex is used as an antiseptic and healing agent on sores (Ely, Schurz, and Smith Valley - P & S), syphilitic sores (Wells - S), ringworm (Elko - S), and cuts (Round Mountain - S). It is applied to remove corns and calluses (Round Mountain - S).

The silk is burned off the ripe seed and these are then ground and applied as a salve on sores (Hawthorne - P). The seed are boiled in a small amount of water and the solution used to soak rattlesnake bites in order to draw out the poison (Winnemucca - P).

A hot tea from the boiled roots is taken internally to bring out the rash of measles (Yerington - P). A half-cupful once or twice a day is taken as a cough medicine (Fallon and Lovelock - P) and in the same quantities especially for tuberculosis (Lovelock - P). Less than a half-cupful of the solution taken internally stops bloody diarrhea (Elko - S). The solution can also be utilized externally as a wash for rheumatism (Hawthorne - P).

The mashed root moistened with water, is applied for several days as a poultice to reduce swellings (Round Mountain - S).

ASTER FRONDOSUS (Nutt.) T. & G. Compositae

(P) tods-e-tonega.

The stems and flowers, when soaked in water were used by one Indian as a soothing, medicinal wash for rheumatism (Summit Lake - P); while another, in the same locality, considered the tea from dried stems, without leaves, to be a general blood tonic.

ASTER LEUCANTHEMIFOLIUS Greene Compositae

(S) hoo-nut-zoo. (E) September aster.

The whole plant, boiled, was taken as a blood tonic, twice a day for a week (Wells - S), or the tops only were brewed and the drink taken warm as a physic (Duckwater - S).

ASTER SCOPULORUM A..Gray Compositae

(S) dimbe-be-ett-zee; duh-na-eye-go. (E) dwarf aster.

For headaches, the fresh or dried leaves are boiled to make a tea which is taken internally in a quantity of not more than a cupful (Round Mountain and Upper Reese River - S). A poultice, made from leaves mashed in cold water, had special use for swollen jaws or neck glands (Summit Lake - P).

The washed roots were scraped and soaked in cold water to make an eyewash (Battle Mountain - S).

ASTRAGALUS SCAPOSUS A. Gray (*) Leguminosae

(S) tim-bah-hay nut-zoo (a general name). (E) locoweed.

The cleaned roots are scraped and boiled to make a decoction, which is taken over a long period of time for venereal disease (Belmont - S).

ASTRAGALUS spp. Leguminosae

(S) coopi-joomb; gup-wuh-ghu; tok-quee. (E) locoweed.

A decoction of the boiled root serves as a wash for granulated eyelids and for toothaches (Austin and Upper Reese River - S). Another informant recommended that the root be soaked in cold water for a half day and that the solution be used sparingly as an eyewash and for sores (Upper Reese River - S).

ATRIPLEX CANESCENS (Pursh.) Nutt. Chenopodiaceae

(S) noo-roon-up. (E) saltbush.

Fresh roots are boiled with a little salt in water and the solution employed in a dose of a half-cupful as a physic (Lida - S).

BALSAMORHIZA HIRSUTA Nutt. Compositae

(P) key-gah-da-goop. (W) auga-lem-lu. (E) balsamroot.

This is considered to be an especially good medicine by the

Indians. From the boiled root is secured a solution that looks like a thin yellow soup. This is used internally for severe stomach and bladder troubles (Ft. McDermitt, Smith Valley, Summit Lake, and Walker River - P). There was one unconfirmed report that the root decoction could be taken for female complaints (Reno - W).

BALSAMORHIZA SAGITTATA (Pursh.) Nutt. Compositae

(P) ah-ku-pah; coo-see quah-soop; pah-kuk. (S) ah-kuk; coo-see ah-kuh. (W) shugil-artus; sugilatse. (E) arrowleaf balsamroot; balsamroot sunflower.

One-half a cup of tea from boiled roots is taken daily over a long period for venereal disease (Hawthorne, Mason Valley, and Smith Valley - P). The mashed root is used as a dressing for syphilitic sores (Ruby Valley - S) or the dry, powdered root is applied for the same purpose (Mason Valley - P). The mashed root is utilized also for swellings or insect bites (Austin, Ruby Valley, and Smith Valley - P & S). Burning the root in a room after an illness is thought to be a good fumigant (Fallon and Reno - P & W). The root decoction is employed as an eyewash (Wells - S) or as a brew to be taken for stomach-aches (Summit Lake - P). The gummy sap which exudes from freshly dug and cut roots is collected in a spoon and swallowed as a cure for consumption (Summit Lake - P).

BATTARREA PHALLOIDES (Dicks.) Pers. Lycoperdaceae

(P) be-sha soo-ah-pah. (E) puffball.

This fungus is gathered in the young stage, sliced, and applied as a dressing for swellings and sores (Fallon - P).

BERBERIS REPENS Lindl. Berberidaceae

(P) cor-ren-nup pah-vee; poo-heg-wee-dah. (S) so-go-diem; so-go-du-yembe; toh-yuh-tu-yuh-bu-huh. (E) barberry.

For general aches or rheumatic pains the leaves are boiled and taken as a tea (Beatty - S) or the roots alone are used for the same purpose (Wells - S).

The boiled roots produce a yellow solution which is taken as a tea to prevent or stop bloody dysentery (Austin, Elko, and Moapa - P & S); also to thicken the blood of hemophilic persons (Moapa - P). In a number of localities it is used regularly as a blood tonic

or purifier (Battle Mountain, Elko, and Hawthorne - P & S). In this connection a Shoshone at Battle Mountain, says that the roots should be steeped, not boiled, and that the first water is discarded. He recommends doses of less than a half-cupful several times a day.

The same decoction from boiled roots is administered as a drink for venereal diseases (Elko and Owyhee - P & S), as a cough medicine, sometimes with whiskey added (Ely and Owyhee - P & S), for bladder difficulties (Ft. McDermitt - P), and as a kidney medicine (Eureka - S).

The stems only are boiled to make a tea which is taken as a tonic for stomach troubles (Winnemucca - P).

BRASSICA CAMPESTRIS L. Cruciferae

(E) wild mustard.

The ripe seed are ground to make poultices for burns (Wells - S).

BRICKELLIA OBLONGIFOLIA var. LINIFOLIA (D.C. Eat.) Robins. Compositae

(S) sahn-a wap.

An adequate botanical specimen was secured from an Indian woman, in fact she produced broken fragments of the plant from a medicine bag but the medicinal data was quite vague. None of her associates recognized the plant. She merely said that the stems and leaves were boiled and taken as a stomach medicine (Elko - S).

CASTILLEJA LINARIAEFOLIA Benth. Scrophulariaceae

(S) anga-quee-ah-wee-tumb; dogowah-die-um. (E) paintbrush.

Prized particularly as a remedy for venereal diseases, the Beatty Indians travel long distances to secure the plant. A solution of boiled roots, taken in small amounts as a drink, is said to cure venereal disease, if the treatment is continued a long time (Beatty and Tonopah - S). The root decoction acts as an emetic and physic (Ione and Tonopah - S) and is taken also to 'purify' the blood (Ione - S).

CATABROSA AQUATICA (L.) Beauv. Gramineae

(S) bah-soh-nip.

This grass, usually found in moist locations, is reported by one Indian to have a stimulating or tonic effect if boiled and taken as a decoction (Ely - S).

CAULANTHUS CRASSICAULIS (Torr.) S. Wats. Cruciferae

(S) wah-numb.

The roots of the plant when soaked in warm water produce a brown color. This infusion is taken internally as a blood tonic (Ely - S).

CERCOCARPUS LEDIFOLIUS Nutt. ex T. & G. Rosaceae

(Moapa P) dunumbe. (P) toobe; toobe-buh-ah; too-pee. (S) doh-numbe; toh-nombe; too-bap-ee; too-bé; too-bee-boh-ah; too-nambe; too-pee. (E) mountain mahogany.

Judging from a number of reports this plant would appear to be one of the more important sources of medicinal remedies for the Indians. Its main use seems to be for pulmonary disorders, especially in the treatment of tuberculosis. Practically all of the informants specified that the bark must be dried, sometimes for as long as two years, before use. After drying, the bark strips are boiled to make the decoction and usually it seems essential that the tea drinking must continue for a long time to aid the condition (Fallon, Lovelock, Mason Valley, and Schurz - P). One Indian recommended that the bark be mixed with young twigs and leaves of Purshia tridentata and boiled, the cool decoction then being taken frequently for pains in the lungs due to tuberculosis (Fallon - P). A decoction of the dried root was used for the medicine at one place (Hawthorne - P). Another medicine is prepared from the soft inner bark of the tree. This is scraped off, sifted and dried. When needed it is boiled and taken as a drink (Nixon - S). See also under Populus trichocarpa.

For coughs and colds the dried bark decoction is taken (Moapa and Wells - P & S), but in one locality a cold water infusion was preferred (Smith Valley - P). Again the medicine is prepared from an infusion of the inner bark (Mason Valley - P) or from the steeped leaves (Summit Lake - P).

The second of the important uses for the dried bark is in the

treatment of sores, cuts, burns, and wounds. It is applied mostly as a powder but sometimes as a paste. Usually it is the dry bark which is ground to a powder for this purpose (Fallon, Owyhee, Schurz, and Tonopah - P), or sometimes the soft inner bark (Austin and Reno - P & S), and a bark decoction was recommended in some instances (Round Mountain and Tonopah - S). One Indian uses the pulverized wood instead of the bark for cuts or burns (Austin - S); likewise the same substance was a specific to dry up syphilitic sores (Yerington - P). The leaves and bark are ground to make a poultice for swellings (Beowawe - S).

For heart disorders a tea decoction was prepared from the leaves or from the bark (Beowawe, Reno, Ruby Valley, and Schurz - P & S).

A decoction of the dried bark, or sometimes of the inner bark only, served as a cold drink to be taken for several days in doses of one-half to a full cup daily, had general favor as a blood tonic (Manhattan, Moapa, Schurz, Smith Valley, and Wells - P & S).

The bark decoction was said to be good for a number of other troubles, such as stomach-ache, venereal diseases (Fallon - P), diarrhea, stomach ulcers, and pneumonia (Schurz - P). For diphtheria the soft inner bark was scraped off and soaked in water as a drink (Austin - S), and the same substance, when boiled and strained, served as a wash for eye diseases (Nixon - S).

See also under Populus trichocarpa for venereal disease treatment, and under Ephedra viridis for diarrhea medicine.

CHAENACTIS DOUGLASII (Hook.) H. & A. Compositae

(P) hoot-see-eva; si-ag-iv; toh-hoe-quah. (S) witch-ah das-ah-dee-ah; witch-ah-numba; yahn-gan-gooie.

One of the Paiute names commonly applied to this plant is 'bawa na-tizua' meaning - 'swelling medicine' and it is utilized mostly in that capacity. The fresh plants, or sometimes only the leaves, are crushed and applied as a poultice (Austin, Battle Mountain, Nixon, Owyhee, Ruby Valley, Stillwater, Wells, and Winnemucca - P & S). To prepare a bath for severely swollen limbs or dropsical conditions, a great number of plants are heated in a tub with just enough water cover. The patient soaks the affected parts for several hours (Battle Mountain - S).

The whole plant or only the leaves, are boiled as a drink for coughs or colds (Nixon and Summit Lake - P).

An interesting idea is displayed in a treatment for rattlesnake

bites. First the leaves and stems of the plant are pulped and used as a poultice, then, provided the snake has not bitten itself, it is skinned and sections of the raw flesh are also used as poultices, these being changed every few minutes (Schurz - P).

A decoction of the boiled plant, in a dose of a half-cupful or less, is an emetic for indigestion or a sour stomach (Wells - S).

Unconfirmed reports also claim that the tea is a heart depressant (Austin and Winnemucca - P).

CHAMAEBATIARIA MILLEFOLIUM (Torr.) Maxim. Rosaceae

(P) par-o-wah tah-cun-o-quah. (S) ting-wee-buh. (E) fern-bush.

The fresh, or dried, leaves are boiled and taken as a tea for stomach-aches or cramps (Ely and Mason Valley - S).

It is said that severe cases of lumbago have been cured by drinking a tea which is made by boiling the young shoots of this plant with the roots of Salix exigua. The two are brewed a long time and the tea taken several times daily for a week or more (Hawthorne - P).

CHRYSOTHAMNUS NAUSEOSUS var. ALBICAULIS (Nutt.) Rydb. Compositae

(S) see-bape. (E) gray rabbitbrush.

The steeped leaves, taken as a tea, serve for stomach disorders and for colds (Beatty and Elko - S), and the dried leaves and flowers are steeped as a general tonic (Austin - S).

CHRYSOTHAMNUS NAUSEOSUS var. SPECIOSUS (Nutt.) Hall Compositae

(S) tah-bah-she-up. (E) rabbitbrush.

The roots and tops, boiled together, are taken as a tea in doses of a half-cupful to stop bloody diarrhea (Manhattan - S). A cough medicine was prepared by boiling the stems and leaves together, the liquid being given in a dose of a half-cupful or less, once or twice a day (Manhattan - S). One family prepares a remedy for cough and colds by boiling the stems of the rabbitbrush with young tops of Artemisia gnapahalodes (Ruby Valley - S).

CHRYSOTHAMNUS VISCIDIFLORUS (Hook.) Nutt. Compositae

(P) see-gu-pee; tah-bee-she-goop; tah-beese-see-goop. (S) nagaha-see-bup-ee; oh-ha-see-bup-e. (E) little rabbitbrush.

For coughs, the young growth is boiled and utilized as a tea (Yerington - P) or else the leaves are merely crushed and soaked in water to prepare the drink for colds (Owyhee - P).

One Indian said that the remedy used during the last influenza epidemic was made by boiling this plant with the roots of Leptotaenia multifida to make a hot potion (Stillwater - S).

Rheumatism is treated by the application of poultices made from crushed stems and leaves which are then moistened (Lida - S). Relief from the same ailment is secured by taking an Indian sweat bath (Reno - P). For preparation of the sweat bath see under Artemisia gnaphalodes.

The finely mashed leaves were inserted in tooth cavities to stop toothaches (Austin - S).

CICUTA OCCIDENTALIS Greene (*) Umbelliferae

(P) hah-kee-noop; hah-ken-oop; haw-ken-noop. (S) hah-tee; hah-tumbe. (E) poison parsnip; water parsnip.

In treating rattlesnake bites the main purpose seems to be the reduction of the swelling and this is said to be accomplished by applying poultices of the pulped root (Ft. McDermitt and Stewart - P).

For ordinary swellings the roots are roasted over coals and then made into poultices (Fallon and Lovelock - P), the same sort of poultices are applied while warm to rheumatic joints (Fallon - P) and also to deaden muscular pain (Austin and Round Mountain - P & S).

Open wounds are never treated with the pulp because of its poisonous nature (Round Mountain - S). Although most Indians are well aware that the plant is poisonous, some use it, nevertheless, as a wash for sore eyes or granulated lids. The roots are boiled and the solution allowed to cool (Upper Reese River - S).

CLAYTONIA PERFOLIATA Donn Portulacaceae

(E) miner's lettuce.

The plants are soaked in water, then mashed to make poultices for rheumatic pains. It is claimed that the substance penetrates and burns like a mustard plaster, thereby acting as a counter-irritant (Ely - S).

CLEMATIS LIGUSTICIFOLIA Nutt. Ranunculaceae

(P) esha-wanna. (S) esha-wanna; esha-wannup. (E) virgin's bower; wild clematis.

As a poultice to reduce swellings or bring boils to a head the mashed leaves are utilized (Tonopah, Upper Reese River, and Wells - S) and sometimes leaves of Plantago major are combined in the poultices for the same purpose (Peavine Creek and Smoky Valley - S); rheumatic pains, bruises, and wounds are also treated by this method (Manhattan and Smoky Valley - S). One family prepares poultices of mashed and moistened seed for severe burns (Upper Reese River - S).

The branches of this plant can be used as a counter-irritant by whipping sore or painful areas (Wells - S). As a wash or tub bath, either hot or cold, for dropsical conditions the boiled leaves are thought to be efficacious (Round Mountain and Yerington - P & S) and at the latter place a hot solution employed as a foot bath relieves tired feet.

For syphilitic sores, leaves are dried, ground to a powder, and applied as a healing agent or a solution of the boiled leaves serves the same purpose (Tonopah - S). Andy Fraser claims that he cures headaches by smelling the crushed leaves (Peavine Creek - S but Orna Jagles crushes the dried leaves to a fine powder and uses the material as a snuff (Tonopah - S).

For a stomach-ache or cramps the leaves, or even better, the roots are boiled and taken as a tea. One to three cupfuls can be taken at a time provided the tea has not been made too strong (Round Mountain - S).

CORALLORRHIZA MACULATA Raf. Orchidaceae

(E) coralroot.

Unverified information indicated that dried stalks of this orchid, or of the snow plant, Sarcodes sanguinea, could be steeped as a tea to build up the blood in pneumonia patients (Owyhee - P & S). This belief may be due to the reddish coloration of the two plants.

CORDYLANTHUS RAMOSUS Nutt. ex Benth. Scrophulariaceae

(S) tim-bah-hay nut-zoo.

One group of Indians recognize this plant as being the "bad disease medicine", i.e., the venereal disease remedy of the locality. The plant is boiled and used as a tea drink (Stillwater - S).

COWANIA MEXICANA D. Don Rosaceae

(Moapa P) uh-nop. (S) be-ah-huh-nabbe; huh-nabbe. (E) cliff rose.

One cure for smallpox is prepared by boiling together the leaves of the Cowania, powdered rock lichens, and 'Kah-seep.'* The solution is taken morning and night in doses of a half-cupful (Ruby Valley - S). In another community the smallpox remedy is made by boiling the tops of the Cowania with the pitch of Pinus monophylla, the decoction being taken in quantities of less than a half-cupful four times daily (Wells - S). An antiseptic wash for smallpox or measles is made by boiling together the young tops, the flowers and leaves (Beatty - S) or the solution may be prepared by boiling the Cowania leaves with pine pitch (Ruby Valley - S).

Venereal diseases are treated by drinking a strong tea from boiled leaves and young stems, or sometimes the leaves and flowers (Moapa and Stillwater - P & S). The same solution serves also as a physic (Beatty, Moapa, and Stillwater - P & S), for colds (Moapa - P), or for pains in the back over the kidneys (Beatty - S).

---

* 'Kah-seep,' a black pitch-like substance, was at first thought to be the dung of either bats or mountain rats but final inquiries indicate that it is the dried urine of mountain rats. (See also under Purshia tridentata for further use of 'kah-seep.')

CREPIS ACUMINATA Nutt. Compositae

(S) ah-zah-div-o-wip; bee-sha-no-go. (E) hawksbeard.

The seed, or the whole plant, are thoroughly crushed and applied as poultices on breasts after childbirth, to induce milk flow, or to relieve sore or caked breasts (Austin - S).

In one case the root of the plant was used as a means of removing a foreign object from the eyeball of a patient. The root ground to a smooth powder, was sprinkled directly into the eye. Several days of application were necessary to dislodge the embedded object but afterward the resultant inflammation cleared up rapidly (Ruby Valley - S).

CREPIS SCOPULORUM Coville (*) Compositae

(S) ah-zah-div-oh-wip; bee-jee div-o-wip. (E) hawksbeard.

The root is made into a wash for sore eyes (Ruby Valley - S); the entire plant is mashed and applied as a poultice to caked breasts of women (Wells - S); and in one instance there was a report that the latex could be applied to lessen the discomfort of bee stings or insect bites (Fallon - P).

CUCURBITA FOETIDISSIMA H. B. K. Cucurbitaceae

(Moapa P) ahn-no-quav; arno-cup. (S) poo-nono. (E) desert gourd.

The large storage root of the plant is employed mainly as a cure for venereal diseases, apparently for both syphilis and gonorrhea (Beatty, Fallon, Lida, Moapa, and Tonopah - P & S). Many of the Indians warned of the poisonous nature of the plant and said that some deaths had occured from overdoses of the medicine. At Tonopah the exact method was indicated for preparing the medicine: pieces of the large root are roasted in hot ashes and rocks, being thoroughly dried afterward; a small piece, not much larger than a stick of chewing gum, is boiled in two quarts of water. One cup or less of the liquid constitutes a dose. It is said that it acts first as a continuous emetic then as a physic.

The seed sometimes are pulverized and applied as a dry powder on venereal sores (Moapa - P).

It is also claimed that the root decoction will kill maggots in wounds (Moapa - P).

CUSCUTA spp. Convolvulaceae

(P) canaza-kwee-sha; too-vah-saah. (E) dodder.

The second of the Paiutes names given above is not the real name of the plant but means literally - "woman without children." It is believed that if a woman eats this material that she will not conceive. The plant is eaten from time to time when sterility is desired (Reno - P).

CYMOPTERUS GLOBOSUS S. Wats. Umbelliferae

(P) ye-duts; ye-luts.

Unconfirmed data seemed to indicate that the water from boiled roots can serve as an insecticide (Fallon and Yerington - P), especially to kill mites on chickens (Schurz - P).

CYPERUS ESCULENTUS L. Cyperaceae

See under Nicotiana attenuata.

DALEA FREMONTII Torr. Leguminosae

(Moapa P) i-era-midja. (S) quee-um-be; tuh-goo-buss-e-emp.

To stop internal hemorrhages a tea was prepared from the boiled roots, according to one Indian, or from the boiled tops, according to another (Beatty - S). One Indian woman had heard that the root decoction could be taken for stomach trouble (Beatty - S). Other individuals gave a name to the plant and knew it was medicinal but they could not say for what purpose (Moapa - P).

DALEA POLYADENIA Torr. Leguminosae

(P) ma-good-du-hoo; ma-good-tu-hoo; moh-goon-du-hoop; moh-goon-du-hoopie. (S) ma-good-tu-hoo; moh-goon-du-hu. (E) smoke-bush.

The plant is known generally over the entire State by all the tribes as a remedy for colds and coughs. The tea for this purpose is made usually from boiled stems, either fresh or dried, and ordinarily is taken hot but there is one person who specified that the

drink should be cold (Upper Reese River - S). The Shoshones of Upper Reese River prepare a bitter solution by boiling together the smaller stems, the leaves and flowers; while those of Tonopah gather the stems and dry them, using a handful to a quart of water for the brew. The dosage apparently is never more than a cupful of the tea at a time (Upper Reese River - S) and some Indians specified that the quantity should be not more than a half-cupful (Winnemucca - P); others said that the twigs should be steeped only and not boiled (Rawhide - P).

The stem decoction is especially favored as a pneumonia medicine (Fallon, Mason Valley, Schurz, and Yerington - P & S). In most instances it was indicated merely that the stems were boiled but in one case there was a specific reference to the use of young stems (Fallon - P), in another only the thick, basal stalks were utilized (Schurz - P), and one Indian preferred the tops of the plants (Schurz - P). The dosage in one community was a half-cupful taken three times a day (Schurz - P).

The decoction was given also for tuberculosis (Rawhide, Smith Valley, and Upper Reese River - P & S), and for influenza (Monitor Valley and Nixon - P & S). Sugar was added to the drink for whooping cough (Lovelock - P).

A number of communities resorted to the hot or cold tea for relief of stomach-aches (Fallon, Reno, Round Mountain, and Smith Valley - P & S).

The medicine was mentioned several times in relation to kidney trouble. A tea from the boiled tops was said to induce urination (Smith Valley - P). A case was cited in which a patient had been cured of pains in the back over the kidneys and incontinence of urine by drinking large quantities of the strong tea for several days (Upper Reese River - S). Another medicine for kidney ailments was prepared by boiling the stems and tops of the smokebush with twigs of Juniperus utahensis (Austin - P & S).

An important treatment seems to be that for smallpox. For this the tea is given internally in small doses and the solution is used externally as an antiseptic bath (Austin and Elko - S), or only the external treatment is employed (Schurz - P). At Austin finely chopped twigs of Juniperus utahensis sometimes form part of the brew.

The tea was mentioned twice as a treatment for venereal diseases but as usual the long period of time, necessary in this treatment, was stressed (Fallon and Monitor Valley - P & S).

For measles the tea was taken internally (Fallon - P) but sometimes the treatment consisted in using the solution as an external, antiseptic wash (Schurz - P).

A tea was taken for muscular pains (Smith Valley - P), and a strong tea for diarrhea (Reno and Yerington - P & S). The stems were chewed for toothache or face neuralgia (Nixon - P), and a hot solution served as a wash for rheumatism (Schurz - P).

In the treatment for sores, the stems were dried, pulverized and used as a powder (Lovelock and Nixon - P) or in one case the crushed fresh stems were rubbed on and then sprinkled with a dry red earth, known as 'pee-sha-pee' (Reno - P).

DATURA METELOIDES DC. Solanaceae

(Moapa P) moh-mope. (S) moh-eep. (E) jimson weed.

Apparently none of the Nevada Indians employ the plant for medicinal purposes although they do know that a narcotic tea can be secured from the roots (Beatty, Moapa, and Tonopah - P & S).

DESMANTHUS ILLINOENSIS (Michx.) MacM. Leguminosae

(Moapa P) pah-oh-pimb.

A single report indicated that trachoma could be relieved by placing five seed of the plant in each eye at night. The eyes were washed with clear water each morning (Moapa - P).

DYSSODIA THURBERI (A. Gray) A. Nels. Compositae

(S) ahn-dah-gah nut-tah-zoom.

The root decoction taken as a tea served as a physic (Beatty - P).

ELYMUS CONDENSATUS Presl Gramineae

(P) ph-hoe-buh wah-hava; sah-wah-havva; wah-havva. (S) pay-wah-guave; wy-ron-zip. (E) rye grass.

The sharp edges of the leaf blades are employed to scrape granulated eyelids, in fact this was the old method of treating trachoma (Fallon, Ft. McDermitt, Lovelock, Owyhee, Reno, Wells, and Winnemucca - P & S). Of doubtful efficacy are washes for sore eyes prepared by either boiling or merely soaking the leaves (Fallon and Owyhee - P & S).

ENCELIOPSIS NUDICAULIS (A. Gray) A. Nels. Compositae

(S) anga-go-ahp (at Beatty and Lida); coo-see ah-kuk (at Tonopah).

Apparently the plant is not common in Nevada and for this reason the Indians are said to go to Hornsilver, a place near Lida, in order to secure material for their remedies. A tea from the boiled roots is taken for bloody diarrhea (Beatty and Tonopah - S), for venereal disease (Lida and Tonopah - S), and a tea from the boiled leaves is used for coughs (Beatty - S).

EPHEDRA NEVADENSIS S. Wats. Gnetaceae

(Moapa P) tu-tupe. (S) coo-see too-roombe. (E) joint fir; Mormon tea; blue ephedra.

This species is employed almost entirely in the treatment of venereal diseases, the method being merely to drink a tea brewed from the twigs and branches (Moapa and Tonopah - P & S). At Tonopah no distinction was made as to the disease but at Moapa gonorrhea was specifically mentioned. At the latter locality the medicine could be compounded by boiling Gilia congesta with the Ephedra twigs. (See further under Gilia congesta and Larrea divaricate).

The tea was taken also as a stimulation for urination (Beatty - S) and the powdered twigs and branches were made into poultices for sores (Fallon - S).

EPHEDRA VIRIDIS Coville Gnetaceae

(P) soo-roop-ee; too-roop-ee; too-toop-ee. (S) too-roombe; too-toom-be. (W) mag-gel; mah-gah. (E) joint fir; Mormon tea; Indian tea.

In the treatment for syphilis one informant said that the small stems only were the ingredients of the tea (Fallon - S); for gonorrhea the dried twigs were mixed with the inner bark of Purshia tridentata to make a tea for drinking (Smokey Valley - S); while other remedies, not specifying which venereal disease, recommended a tea of the Ephedra twigs alone (Winnemucca - P), or the stems were mixed with Gilia aggregata (Austin - S).

As a regulator for kidney, or sometimes bladder disorders, a steeped or boiled tea is prepared from the twigs or branches (Ely, Fallon, Hawthorne, Monitor Valley, Nixon, Schurz, and Tonopah - P & S). Usually no dosage was indicated but in a few cases the quan-

tity of tea to be imbibed was said to be 'several cupfuls' a day.

For colds the same tea was recommended (Elko, Fallon, and Nixon - P & S) and in the first named locality it was said that the tea should be boiled down to a thick consistency before taking.

The tea is favored in nearly all communities as a tonic or blood purifier. In fact it is believed that the tea aids the circulation of the blood and for that reason is given to old people (Belmont and Fallon - P & S).

The tea is taken also for delayed or difficult menstruation (Dresslerville, Gardnerville, and Minden - W); for stomach disorders (Fallon, Lovelock, Schurz, and Winnemucca - P & S). For stomach ulcers the tea is drunk instead of water (Schurz - P).

In one community the tea is taken regularly as an aid in the cure of rheumatism (Yerington - P).

As a physic the stems are boiled in salted water (Beatty - S) or sometimes only the roots are employed (Lida - S).

For childrens' diarrhea a warm tea is prepared by combining this plant with the scraped bark of Cercocarpus ledifolius (Reno - P & S).

The dried and pulverized stems are applied as a powder to cure sores (Nixon and Schurz - P & S) or the finely ground material may be mixed with the pitch of Pinus monophylla and used as a salve (Austin - S). For burns the powder is moistened slightly and functions as a poultice (Battle Mountain - S).

EQUISETUM KANSANUM Schaffn. Equisetaceae

(S) bah-see-noo; kah-wah-quah-see. (E) horsetail rush.

The plant is boiled for about thirty seconds and the decoction taken for kidney trouble (Ely - S).

ERIGERON CAESPITOSUS Nutt. Compositae

(P) booie na-tizuah; kah-noop-ah.

The roots are boiled and the cooled solution employed as an eyewash (Fallon - P). Also the roots are boiled to make a strong red tea, and of this a cupful is said to be sufficient to stop diarrhea (Upper Reese River - P).

ERIGERON CONCINNUS var. APHANACTIS A. Gray Compositae

(P) dootsie tah-bah-she-up; too-bee-man-ob. (S) boo-ee nut-zoo. (E) brass buttons.

The whole plant is boiled and a half-cupful or less of the brew taken for stomach-aches and cramps (Ft. McDermitt, Schurz, and Tonopah - P & S), the function of the medicine apparently being that of a physic. However, there seemed to be no agreement among the Indians as to the degree of action produced by the decoction. Some claimed that the medicine was not a physic (Tonopah - S), others said it was only a mild physic (Schurz - P). On the contrary some individuals warned that the tea acted as a violent emetic and physic; and for this reason the remedy is considered as an appropriate treatment for chronic constipation (Hawthorne - P).

The decoction was used also as an eyewash, three drops at a time, repeated at intervals during the day (Peavine Creek - S).

ERIODICTYON ANGUSTIFOLIUM Nutt. Hydrophyllaceae

(Moapa P) wee-poo-en-ub. (S) wee-pah-got-um. (E) mountain balm; yerba santa.

The leaves, or the young shoots, are brewed and the solution taken in small doses for colds and coughs (Beatty and Moapa - P & S), honey is sometimes added to the drink (Las Vegas - P).

The brew made from the leaves or tops is said to be an excellent expectorant and for that reason to be a suitable medicine for pulmonary troubles or early stages of tuberculosis (Las Vegas and Moapa - P & S).

The brew is a counteractive for vomiting and diarrhea (Moapa - P).

A brew of the boiled leaves is taken to relieve stomach-aches, and also as a drink in the cure of venereal disease (Beatty - S).

The young stems, the leaves, and flowers are boiled and the liquid used in hot compresses for rheumatic pains (Beatty - S).

ERIOGONUM MICROTHECUM Nutt. Polygonaceae

(P) pee-wee-guy-womb-mutz-zee. (S) ahn-ga-see-ga wee-ub; anga-kah-sah-rumba. (E) wild buckwheat.

The roots, and sometimes the tops, are boiled as a tea for treating tuberculosis (Beatty and Tonopah - P & S). At the latter town, it is claimed that this medicine is a definite cure for tubercular cough. To prepare the solution one first dries the roots and the tops and then boils a large quantity. Since the liquid keeps well, it is stored in bottles until needed. The patient must drink the solution instead of water and the treatment must continue steadily for as long as a year.

The stems and leaves are boiled for a tea to treat bladder trouble (Smith Valley - P).

The whole plant is used to prepare a boiled solution which serves as a wash or for hot compresses in treating lameness or rheumatism (Ely and Wells - S).

ERIOGONUM OVALIFOLIUM Nutt. Polygonaceae

(P) ya-paw-taw-the. (S) naka-donup. (E) butterballs.

A tea from the boiled roots is employed to cure colds (Fallon - P & S).

ERIOGONUM SPHAEROCEPHALUM Dougl. ex Benth. Polygonaceae

(P) ya-paw-taw-the. (E) sulphur flower.

The root decoction is used for colds (Winnemucca - P) and to stop diarrhea (Elko and Ft. McDermitt - P & S).

ERIOGONUM UMBELLATUM Torr. Polygonaceae

(P) na-ka-donip; wadda-e-goh. (S) bah-hoe-zee; naka-donup. (E) sulphur flower.

The leaves, sometimes combined with the boiled roots, are mashed for poultices which are used for lameness or rheumatism (Ely and Yerington - P & S).

A decoction of the roots is prepared and taken hot for colds (Beatty, Owyhee, and Summit Lake - P & S). The same solution serves also for stomach-aches (Nixon - P).

ERYNGIUM ALISMAEFOLIUM Greene — Umbelliferae

(P) momono-kaiyu. (E) button snakewood.

The whole plant is steeped and taken as a tea for diarrhea (Owyhee - P). Apparently the plant does not have a wide distribution in the State, having been collected by us only once in Elko County.

EUPHORBIA ALBOMARGINATA T. & G. — Euphorbiaceae

(S) nah-com-boot-zip. (E) spurge.

The whole plant is crushed and applied as a poultice on snake bites (Lida - S). The boiled plant furnished a tea to be taken as a tonic for general debility (Lida - S).

EUPHORBIA ARENICOLA Parish — Euphorbiaceae

(Moapa P) tah-wee-carib. (E) spurge.

The plant is employed in medicinal remedies infrequently. Water from the boiled plant serves as an eyewash, and a poultice of the mashed plant is supposed to reduce swellings (Moapa - P).

EUPHORBIA POLYCARPA Benth. — Euphorbiaceae

(S) nah-comb-boh-zip; nah-wah-go bud-zip. (E) spurge.

The plant can be made into a tea drink as a tonic for any general, indisposed feeling or the solution can be used as an eyewash (Beatty - S).

EUROTIA LANATA (Pursh.) Moq. — Chenopodiaceae

(P) boo-see-ah-wah-be; she-shu-bah. (S) shee-shub; tuh-veep. (E) white sage; winter fat.

In early times a hot solution made from this plant was used by the Indians to rid their hair of lice, in fact one of the Paiute names, 'boo-see-ah-wah-be' means - 'head lice plant.' As a matter of fact the boiled decoction is employed still as a hair and scalp tonic (Battle Mountain, Beowawe, Ely, Fallon, and Yerington - P & S).

There is a belief that this treatment will prevent or check falling hair (Tonopah - S), or even that constant use of the liquid would act as a hair restorer in baldness (Beatty - S), and also that it prevents the hair from turning gray (Schurz - P).

The solution prepared from boiled leaves, or from stems and leaves, was deemed beneficial for eye soreness, either as a wash or in the form of a compress (Ely and Reno - P & S).

FORSELLESIA NEVADENSIS (A. Gray) Greene — Celastraceae

(S) bas-un-dook nut-zoo.

This plant was recognized by one Indian, who said that his mother had used it some forty years ago to cure a number of Smokey Valley Shoshones suffering from the early stages of tuberculosis. The shrub is boiled and the decoction given as a tea in doses of several cupfuls daily over a long period of time (Round Mountain - S).

So far as our experience goes this is the only record of the plant being utilized by Nevada Indians. However there were other Indians who recognized the plant. For instance Maggie Jack, of Manhattan, had seen the plant growing along a trail leading to South Twin River and she had heard of its use as a tuberculosis medicine. Long Haired Bill, of Monitor Valley, said that the Shoshones of Death Valley in California employed the decoction regularly to treat tuberculosis.

FRASERA ALBOMARGINATA ssp. INDUTA (Tidestr.) Post. — Gentianaceae

(no name known)

The roots are boiled to make an eyewash (Beatty - S).

FRASERA SPECIOSA Dougl. — Gentianaceae

(S) coo-see div-oh-savva. (E) deer's tongue.

The Shoshone word 'div-oh-savva' more properly belongs to Veratrum californicum, a plant having reputed contraceptive properties. In fact the literal meaning of the word is 'sterile' or 'childless woman.' The Indians offer no explanation for applying the name to the Frasera, unless it be due to a fancied resemblance between the two plants.

The decoction of the Frasera roots is taken as a tonic for any general weakness or feeling of illness. The dose is said to be a half-cupful taken 'once in a while.' (Manhattan - S).

GILIA AGGREGATA (Pursh) Spreng. (*) Polemoniaceae

(P) pah-wah-gopish; para-give; soh-noy tah-cun-oh-quah. (S) enga-mo-wanya; enga-mutz-oh-y-newie; tem-piute; tin-ah-piute. (E) scarlet gilia; timpiute.

The Paiute word, 'soh-noy tah-cun-oh-quah' means - 'little bird food,' while the Shoshone 'enga-mutz-oh-y-newie' means - 'red flowers hanging down on each side of stem.' For this reason it may be that neither is to be considered as a specific Indian name for this particular plant.

An amusing sidelight to be noted is that practically all of the Shoshones, when questioned, recognized this plant immediately as 'the big Paiute bad disease medicine,' while on the other hand scarcely any of the Paiutes would admit that they had ever seen the plant or that it had any use.

By far the principal employment of the plant, in the Shoshone communities at least, is for the treatment of venereal diseases, both gonorrhea and syphilis being mentioned in this connection. The whole plant is boiled for the purpose and the solution can be taken as a tea or used as a wash. The Indians agreed that a long period of treatment was necessary to effect a cure. The dosage, when indicated, varied from a half-cupful three times daily (Upper Reese River) to a half-cupful once a day (Peavine Creek). See also under Ephedra viridis.

Both Paiutes and Shoshones, throughout the State, use the plant as an emetic and physic. For this purpose the whole plant, or sometimes the root only, is boiled to make the tea. A half-cupful was the usual dose.

Scattered reports indicated that a brew from the whole plant was taken as a blood tonic (Austin and Upper Reese River - S), a drink for colds was prepared from boiled roots (Nixon - P), or a decoction of the whole plant was a disinfectant wash for the itch (Upper Reese River - S).

The whole plant is crushed and made into a poultice for rheumatic aches (Lida - S).

As a medicine to induce vomiting, see under Aquilegia formosa.

GILIA CONGESTA Hook. (*) Polemoniaceae

(P) quoy-hee nooma natiz-u-ah. (S) bas-oh-nup; be-he-vah; bee-ah-du-hu; bee-hee-vah; hoe-ni; hoo-na; hoo-ni; sah-tone-zee; sah-tone-zee-yung. (W) wem-see.

From the data secured it would appear that this is a plant employed predominantly by the Shoshones, there being but two reports from the other tribes. During the interviews, about half of the Shoshones indicated that a decoction of the plant was taken as a blood tonic, or as many of them expressed it - 'to clean the blood.' There is reason to believe that in these cases the answers were dissimulative due to modesty. In other words, these people were ashamed to say frankly that the decoction was used for venereal diseases. The experience with one family in Ely would tend to prove this point because upon meeting them the first year as strangers, they gave the stock answer - 'to clean the blood' in describing the medicinal properties of the plant, but in the second encounter with the same people they admitted that the members of the colony employed the plant in the treatment of venereal diseases.

In five localities the treatment was mentioned definitely in relation to gonorrhea (Austin, Elko, Moapa, Smokey Valley, and Tonopah - P & S), and at Moapa the informant remarked that the medicine would not serve for syphilis. The data from the remainder of the localities were not specific and indicated the treatment to be merely for venereal disease (Beatty, Monitor Valley, Owyhee, Round Mountain, Tonopah, and Upper Reese River - S).

Ordinarily the treatment consists of drinking the decoction but usually no exact dosage was indicated. One Indian said that the drink should be taken a half-cupful at a time over a long period (Upper Reese River - S), while another remarked that often the twigs of Ephedra nevadensis are added to the brew in order to lessen the disagreeable flavor of the medicine (Moapa - P). The same man went on to say that the tea must be taken hot but that the patient must lie down afterward to prevent nosebleed and also so that the medicine not act as an emetic. According to still others the plant can be mashed with raw Penstemon deustus and applied as a wash to dry up gonorrhea (Smokey Valley - S); or the plant alone, mashed to make a poultice, will heal venereal sores or eruptions (Elko - S).

All of the Indians employ the plant as a physic and emetic, in fact it may be that these are the properties of the medicine which are utilized in the relief of a number of disorders, such as colds, diarrhea, indigestion, and stomach trouble.

The decoction was mentioned specifically in treating influenza (Reese River and Smokey Valley - S), one Indian claiming that it was a better medicine than that prepared from Leptotaenia multifida. He said the dose was a cupful at a time taken two days in succession.

The decoction was taken for liver trouble (Ruby Valley - S) and for kidney complaint (Ely - S).

For dropsy the tea was drunk and poultices of the crushed plant applied (Dresslerville - W).

The boiled decoction, or sometimes the cold water infusion, also served as an eyewash (Beatty and Upper Reese River - S). The decoction is considered to be beneficial as an antiseptic wash for wounds, cuts, bruises, pimples, and sores (Austin, Beatty, and Smokey Valley - S). An outstanding case was cited as an example in which the patient had been afflicted for two years with chronic ulcers. It was claimed that a cure was completed in a month by external and internal treatments with the decoction, alternating with short exposures to sunshine (Austin - S).

The plant is boiled, drained, mashed and used as a plaster for erysipelas, especially of the face (Upper Reese River - S). Poultices of the raw, crushed plant aid the healing of back sores of horses (Elko - S).

GILIA EREMICA var. ARIZONICA Craig (*) Polemoniaceae

(P) eck-quee-hu-binga.

The steeped plants are employed as a tea for tuberculosis of children (Nixon and Reese River - P).

GILIA EREMICA var. ZIONIS Craig (*) Polemoniaceae

A single report indicated that the plant decoction was taken as a stomach medicine and to stop diarrhea (Summit Lake - P).

GILIA FILIFOLIA var. SPARSIFLORA (Eastw.) Macbr. (*) Polemoniaceae

(P) sigh-yah-gava; si-yah-gum; too-bee man-a-ba; too-bee too-ben-aba; too-man-aba. (S) din-ah-ee-goom; duh-na-ee-go; duh-nah-eye-go.

Paiutes and Shoshones in general recognize this plant as the one employed in making the decoction which is taken either as a physic or emetic. Apparently the medicine has a drastic action and for this reason the dose is usually indicated to be less than one-half a cupful.

Aside from the purpose mentioned above there were only two other remedies mentioned; the decoction was taken as a drink for venereal disease (Tonopah - S) and Johnnie McCann claimed that the boiled plants used as a tub bath would relieve rheumatic pains (Upper Reese River - S).

GILIA PUNGENS (Torr.) Benth. (*) Polemoniaceae

(S) duh-nah-eye-gum; tin-ah-ee-go.

Our data would show that only a few Shoshones know this plant and that it is employed only as a wash for swellings or soreness of the eyes. Two said that the whole plant was boiled for this purpose (Austin and Beatty), while two others specified a decoction of the roots only (Fallon and Tonopah). One prepares a cold water infusion by merely soaking the roots and stems (Lida).

GRINDELIA SQUARROSA var. SERRULATA (Rydb.) Steyerm. Compositae

(P) oha tonega; sah-nah tonegan. (S) sah-nah cav-oh-no-ah; sah-nah-goop-ah-rah; woh-ah-gum. (E) gum plant.

There is another species, Grindelia nana Nutt., which occurs in the State together with the one named above and apparently the Indians do not distinguish between the two and employ both indiscriminately in their remedies.

The plant decoction, according to a number of Indians, was of value in curing smallpox; the doses were small but were taken regularly every day (Elko and Ruby Valley - S). At the latter place, it was specified that the dose should be one teaspoonful, three times a day.

The dose for measles, was less than a half-cupful, three times daily (Ruby Valley - S).

In the treatment for venereal disease the same solution was indicated although the amount to be taken varied from 'small doses' to a half or two cups daily (Elko, Ruby Valley, and Wells - S). Most of the people explained also that in the case of this disease, a long period of time was required for the treatment.

For pneumonia it seemed that the younger, more resinous, portions of the plant were preferred for the decoction (Fallon and Owyhee - P). The dosage was said to be less than a half-cupful, taken hot.

The decoction is said to be a good expectorant and for this reason is popular as a cough medicine (Elko, Owyhee, Ruby Valley, and Tonopah - P & S).

The tea is taken also as a remedy for several other disorders; for bladder trouble (Elko and Owyhee - P & S); for stomach-ache or as an emetic (Lida and Wells - S).

A poultice of the boiled plant serves for swellings (Ruby Valley - S). In the same community was cited the case of a patient with a broken leg bone. Warm poultices were applied on the wound, being changed every day for four weeks. Also the solution in which the plant had been boiled was used as an antiseptic wash to aid in the healing.

GUTIERREZIA SAROTHRAE (Pursh) Britt. & Rusby Compositae

(S) see-gupe; too-goot-se-ooh-goope; toom-bee-see-bupe. (E) snakeweed.

The Indian word 'see-gupe,' in its variable spellings, is a general term applied to several shrubby plants with yellow flowers, such as Chrysothamnus or Tetradymia.

One informant used the boiled leaves, wrapped in a cloth, as a poultice for sprains or rheumatism. It was said that the application created enough heat to burn the skin (Summit Lake - P).

There was one report that the decoction of the plant could be taken as an aid in curing a cold (Austin - S).

As an antiseptic wash for measles the plant was boiled with finely cut needles of Pinus monophylla (Austin - S).

To stop a nosebleed, one Indian claimed that the boiled leaves, applied in a wet cloth to the top of the head, would suffice (Nixon - P).

HEDEOMA NANA (Torr.) Briq. Menthaceae

(E) pennyroyal.

One Indian made a drink from the boiled plant as a physic and for indigestion (Beatty - S).

HELIANTHELLIA UNIFLORA (Nutt.) T. & G. Compositae

(P) ah-kuh. (S) ah-kuk. (E) little sunflower.

The word 'ah-kuh' is applied to other sunflower-like plants with large, edible seed.

The root only is employed, usually as a poultice. In one case the mashed substance was heated on the stove and applied hot for swellings and sprains (Fallon - P). In another the substance was used without heating as a counter-irritant for rheumatism of the shoulder or knee (Beowawe - S).

A cold water infusion of the mashed root when used as a wash or in a cold compress gives relief from headache (Austin - S).

HELIANTHUS ANNUUS L. Compositae

(P) bah-kuk. (E) common sunflower.

In a single instance the root decoction was reported to be employed as a warm wash for rheumatism (Smith Valley - P).

HELIOTROPIUM CURASSAVICUM Boraginaceae
var. OCULATUM (Heller) I.M.Johnst.

(P) tube-manabe; tu-ma-nabe. (S) i-yah-oh-ho; i-yah-oh-ho; tu-man-ah-be. (E) heliotrope.

Anna Downington, a Paiute of the Reno colony, said that the word - 'tube-manabe' meant - 'growing among rocks' and that probably it was not the real Paiute name for the plant.

In one locality a number of Indians were in agreement that a decoction of the plant was administered as a tea in case of retention of urine (Beatty - P & S). Two informants specified that only the roots were to be used. Only small quantities of the potion are needed and it is said that the action is quite rapid.

One Indian woman boiled only the tops of the plant to make a potion which is believed to be an aid in measles by bringing out the skin eruption (Lida - S).

One family claims that the boiled solution can be administered for venereal disease (Beatty - S).

The root decoction was reported once as a gargle for sore throa

(Beatty - P & S).

Emetic properties also are assigned to the decoction in some communities (Beatty, Fallon, Schurz, Winnemucca, and Yerington - P & S).

HERACLEUM LANATUM Michx. Umbelliferae

(P) bee-ah-bogo; dotse-toneg-e-ga; pi-yah-pah. (S) be-ah boh-quah; boh-quah. (W) comb-ho. (E) cow parsnip.

In the few sources of data relative to this plant there were only two in which the remedy was the same. Members of two different tribes treat toothache by inserting pieces of the raw root in tooth cavities to stop the pain (Austin, Dresslerville, and Gardnerville - S & W).

For sore throat the raw root was mashed, soaked in water, and the infusion used as a gargle and the mashed root substance was applied as a poultice around the throat (Austin - S).

A method of preparing a remedy for coughs and chest colds consisted of burning whiskey in a saucer to remove the alcohol, then boiling it with roots of the plant and taking the decoction as a tea. For head colds there was recommended the inhalation of smoke from roots, mixed and burned with the pitch of Pinus monophylla (Austin - S).

Other scattered data indicated that a half-cupful of the root decoction as a tea would stop diarrhea (Gardnerville and Dresslerville - W), or that the same decoction, if taken over a long period of time, would cure tuberculosis (Round Mountain - S), that the mashed roots served as a poultice for rheumatism (Winnemucca - P), and that a salve made from the root would aid in healing wounds (Owyhee - P).

HERMIDIUM ALIPES S. Wats. Nyctaginaceae

(P) he-wov-bee; hewovey. (E) four-o'clock.

This is employed commonly by the Paiutes in the treatment of headaches; in fact, the remedy name applied by them to the plant is 'spee-ge-nooma na-tiz-u-ah' meaning - 'headache medicine.' The usual method consists in using the hot or warm water from the boiled root as a wash for the head (Fallon, Schurz, and Yerington). Only two individuals claimed that the solution could be given as a tea for headaches (Fallon and Schurz). In these same two communities ar

additional aid for curing headaches consisted in making compresses or poultices of the fresh crushed leaves to bind on the head.

The root solution was employed as a wash on the face and head for delirium (Reno) and to relieve neuralgia (Fallon). For fainting spells, dizziness and nausea the wash could be applied externally to the head or a half-cupful of the solution administered as a tea (Schurz).

For healing purposes the peeled roots were dried, pulverized, and the powder applied dry to sores (Reno and Yerington), made into a paste for burns (Hawthorne), or into a wash for impetigo (Schurz).

The mashed leaves are sometimes made into poultices for swellings (Schurz).

A single report indicated that less than one-fourth cupful of the solution from boiled roots would act as a physic (Fallon). Apparently the Shoshones are addicted to physic medicines while on the contrary the Paiutes appear to use such remedies infrequently.

HEUCHERA RUBESCENS Torr. Saxifragaceae

(S) toya-dimba-wah-rumb; zee-guoy. (E) alum root.

The two names given above were not used by three of the groups from whom data was secured; instead, they knew the plant by the term - 'be-ah nut-zoo' which signifies merely - 'big medicine.' This is rather curious because ordinarily if a plant is not called by its own name the Indian substitutes one of the specific remedial terms.

A tonic from the boiled roots is used a great deal in some families for general systemic debility (Elko - S), sometimes even being prepared in quantity and bottled. The dose is a half-cupful every day.

According to one report the root decoction is quite effective in reducing high fevers (Round Mountain and Smokey Valley - S). The dose is a half-cupful given three times daily.

There were two reports of the root decoction being taken as a cure for venereal disease, the dose in one case being a half-cupful each morning (Hawthorne and Manhattan - P & S).

The boiled root decoction in one instance was taken as a tea for heart trouble (Beatty - S).

A cold water infusion from the soaked roots served as an eyewash (Fallon - P). The same cold water infusion was taken in an unspec-

ified amount to stop diarrhea, and in 'small doses' for several days to relieve liver trouble or biliousness (Beowawe - S).

Soaked roots were given to horses and cows for cramps (Beowawe - S). A wash for saddle sores on horses was made from mashed and boiled leaves (Tonopah - S).

HOLODISCUS DISCOLOR var. DUMOSUS (Nutt.) Maxim. Rosaceae

(P) oh-na-nut-tiz-u-wabbe; tah-see-vuh; wah-poose-oh-guay.
(S) tot-zip; toya-huhnabbe. (E) rock spiraea.

In the treatment of venereal disease, one informant recommended that a cup of the decoction from boiled leaves be taken three times a day (Manhattan - S) while another varied by using only the stem decoction, the dose being less than a half-cupful daily (Smokey Valley - S). In both cases the treatment needed a long period of time.

A decoction made from the leaves and stems was taken at a dose of a half-cupful for stomach-aches (Smokey Valley - S), or a decoction of the boiled roots as a remedy both for stomach disorders and to stop diarrhea (Nixon - P). However, a half-cupful of decoction from the leaves acted as an emetic (Round Mountain - S). Tea from boiled stems helped to cure colds (Mason Valley - P).

One woman prepared an antiseptic wash for external purposes by boiling together leaves, flowers and upper stems (Lida - S). She also employed the solution internally to treat a vague condition arising from an undefined cause. The feeling was that of internal organs having swollen thus causing such symptoms as shortness of breath and the inability to bend over or to lie down. For this condition the tea was taken in doses of one-half to a full cup, three times a day for a week.

HYPERICUM SCOULERI Hook. Guttiferae

(P & S) andra-vitch-gwanna. (E) St. John's wort.

All but one of the remedies obtained from this plant were for external applications. In two communities the water from boiled plants was used as a bath for aching feet (Eureka and Wells - P & S).

As a healing agent for sores, or to reduce swellings, the boiled plant was applied direct or as a poultice (Ruby Valley and Wells - S); for cuts or bullet wounds the dried plant was pulverized and applied as a powder (Upper Reese River - S).

The dried root was kept at hand, in one household, as a toothache remedy but the manner of application was not revealed (Beowawe - S).

As a remedy for venereal disease a tea was prepared from the tops and taken in doses of less than a half-cupful daily over a long period of time (Ruby Valley - S).

IRIS MISSOURIENSIS Nutt. Iridaceae

(P) pah-see-toob-ah; poo-gooey-roop; poo-gooey-rub. (S) pah-sag-ee-dah; pah-sag-ee-duh; pah-sag-e-dump; pah-sag-gee-gee; sag-e-dump. (E) wild iris.

The most extensive use for this plant is as a toothache remedy being so reported from most of the Paiute and Shoshone communities. The usual procedure was merely to insert entire pieces, or a portion of the pulped, raw root directly in the tooth cavity, but some of the people said that the pulped root would serve just as well if placed against the gum.

Information secured during the first year of this work included statements from several Indians that the root decoction was a specific remedy for gonorrhea (Austin, Elko, Ft. McDermitt, Owyhee, and Ruby Valley - P & S) but the data was not subsequently verified, the nearest approach being a single record in which the pulped root was applied as a salve on venereal sores (Stillwater - S).

For bladder trouble the roots were boiled to produce a whiskey-colored liquid, with a bitter taste, but no dosage was indicated (Ft. McDermitt and Stewart - P). The only other internal remedy employing the decoction, was for stomach-aches, less than a half-cupful being drunk as a warm tea (Ruby Valley and Winnemucca - P & S).

To cure earaches a little of the boiled root solution was dropped, a small quantity at a time, into the ear. The liquid was applied luke warm (Fallon and Ruby Valley - P & S).

There was a single instance of treating rheumatic pains with a poultice of the mashed roots (Manhattan - S).

The seed though generally considered to be poisonous, were administered as a paste to sores (Smith Valley - P) and to burns (Battle Mountain - S). In both cases ripe seed were specified.

IVA AXILLARIS Pursh Compositae

(P) quee-duh-tee-nava; too-ha-babba. (S) du-du-zip; too-du-zip. (E) poverty weed.

From this very common weed, the Shoshones secure one of their favorite remedies for stomach-aches or cramps (Battle Mountain, Belmont, Beowawe, Eureka, Round Mountain, Ruby Valley, and Wells - S). It is recommended expecially for young children. The solution is prepared variously, by boiling or steeping the whole plant, only the roots, or leafy stems. Although the dosage was not always indicated, it was sometimes said to be a half-cupful, or a small or weak dose.

The same decoction was an important remedy among most of the Shoshones in treating diarrhea, the dosage being much the same as that indicated for stomach-aches. In addition the tea was mentioned twice as being suitable for curing children's colds (Eureka - S).

According to one report the root can be eaten raw, roasted or boiled for indigestion (Round Mountain - S).

The Paiutes, apparently, favor the plant for external purposes only and even then infrequently. The leaves alone are utilized: mashed as a plaster for sores, boiled as a wash for sores and skin irritations, or they may be rubbed vigorously on rashes and itches (Lovelock and Schurz - P).

JUNIPERUS COMMUNIS L. Pinaceae

(Moapa P) pah-wap-o-ruitz. (P) dootsie pah-wap-pee; wah-pee. (S) mah-hav-wa. (E) common juniper.

It is said that the young growth from the ends of the branches, when boiled, produces a reddish liquid. This is taken as a potion in small quantities as a blood tonic (Beatty - S).

The solution from boiled twigs is taken as a cold tea for venereal disease (Moapa - P).

In one family the fruits are dried, the fleshy outer portion discarded, and the seed eaten every day as a blood tonic, and especially for lumbago (Schurz - P).

JUNIPERUS OCCIDENTALIS Hook. Pinaceae

(P) wah-pee; wah-puee. (S) sah-mah-be; sam-ah-bee. (W) puh-ahl. (E) western juniper.

See under Juniperus utahensis.

JUNIPERUS SCOPULORUM Sarg. Pinaceae

(P) bah-sah-mabe; bas-um-ah-be. (E) rocky mountain red cedar.

A single report indicated that the terminal twigs were boiled to make a tea. This was taken internally in the usually indicated dosage of less than a half-cup daily over a long period for venereal disease (Elko - S).

JUNIPERUS UTAHENSIS (Englm.) Lemmon (*) Pinaceae

(P) wah-pee; wah-puee. (S) sahn-ah-poh; sam-ah-bee. (W) puh-ahl. (E) Utah juniper.

This species of juniper has a wide distribution in Nevada and is the one most commonly encountered. Where the other species coincide in range with this one it is apparent that the Indians do not always distinguish among them. At any rate the Indians names and the remedial applications are much the same for all the species. With this in mind it is to be assumed that the data presented in this report under Juniperus utahensis can apply equally to J. occidentalis.

The Shoshones and Paiutes are partial to this plant as the basis of cold and cough remedies. Usually a tea is made simply by boiling the young, terminal twigs but there were some variations, such as adding the berries to the brew (Ruby Valley - S) or even using the boiled berries only (Fallon - P), and one report suggested the use of the green fruits (Stewart - P). According to one report the leaves were smoked and the fumes inhaled for head colds (Summit Lake - P), or fumes from branches may be inhaled - (Reno - P. & S.). For other admixtures see under Artemisia tridentata, Pinus monophylla, Salvia carnosa, Tetradymia comosa and Wyethia mollis.

The decoction of young twigs serves also for a number of other ailments. It is taken internally as a tea for a blood tonic (Schurz - P), as a general tonic (Elko and Wells - S), as a hot tea for

hemorrhages (Fallon - P), to reduce fevers (Smith Valley - P), for stomach-aches (Mason Valley and Smith Valley - P), for kidney trouble (Elko - P & S), and for influenza (Mason Valley - P.) For this last disease see also Leptotaenia multifida. For smallpox and kidney ailments see under Dalea polyadenia.

A plain twig decoction was given for venereal disease (Battle Mountain and Fallon - P & S) but one remedy was made by boiling the resin of either Pinus monophylla or Abies concolor with the cracked juniper berries (Schurz - P).

A cold water infusion of finely ground terminal twigs was strained, and the solution taken internally to rid the alimentary tract of worms (Elko - S).

The finely ground twigs, also, were heated over a fire and bound in a hot cloth against the neck for a sore throat. The material was reheated from time to time (Smokey Valley - S).

In a similarly prepared treatment, the leaves were pounded up, moistened and tied in a cloth with a hot rock. This was held to the jaw for swollen and sore gums, or for toothaches (Beatty - S).

Other external remedies utilizing the twigs were reported. A strong solution of the boiled material was esteemed as an antiseptic wash for measles and smallpox (Battle Mountain and Monitor Valley - S), or for sores (Lovelock - P), the discomfort of measles is relieved by rubbing heated twigs on the eruptions (Reno - P. & S.). The mashed young twigs were made into poultices for burns (Ruby Valley - S), and for swellings (Austin and Eureka - P & S), or the same material when boiled served as a poultice for rheumatism and the cooled solution used as a wash (Schurz - P).

In a number of settlements the branches (or once the berries only) were burned as a fumigant after illness (Dresslerville, Fallon, Gardnerville, Monitor Valley, and Upper Reese River - P, S & W).

The fumes from burning twigs, when inhaled, were believed to clear up headaches and colds (Dresslerville, Fallon, and Garderville P & W).

For treatment of boils see under Pinus monophylla.

The preparation of the Indian sweat bath was described by individuals in two localities. In this instance the treatment was recommended for rheumatism or heavy colds. A fire was kept burning in a specially made excavation until the ground became heated. The

fire was then raked out and replaced with a layer of young juniper twigs. The patient reclined on top and was covered with blankets to induce sweating (Nixon and Schurz - P).

The root of the plant was mentioned but once and in that instance it was said that the dried material was shaved finely and boiled as a tea to be taken for venereal disease (Schurz - P).

The boiled berries were taken as a tea for kidney ailment, and especially to induce urination (Lovelock, Reno, Ruby Valley, and Stewart - P & S). The method of preparation, as described in one of these reports, consisted in boiling nine berries in a quart of water. The dose was a half-cupful three to four times a day. In one remedy the green berries were recommended for making the tea. See also under Pinus monophylla.

The liquid from the boiled berries had other uses too. The cold tea, in doses of less than a half-cupful a day for a week, was a blood tonic (Fallon - P), a cupful daily was taken for heart trouble (Tonopah - S), less than a half-cupful was given for menstrual cramps (Smith Valley - P). For rheumatism the berries were boiled in a small amount of water and the tea taken several times a day; and the solution was applied also as hot packs to the afflicted parts (Hawthorne - P).

KRAMERIA GRAYI Rose & Painter — Leguminosae

(Moapa P) nah-kah-vah dah-tohnub. (S) nah-gee too-nah-nib.

Only the root is used. It can be boiled and the decoction employed as a wash or, when dried and pulverized, applied as a powder to sores (Moapa - P).

The root is ground and made into a cold water infusion as a wash for swellings (Beatty - S) and also for gonorrheal sores and gonorrheal eye infections (Las Vegas - P). And Indian at this last named town also claimed that the decoction could be taken internally for gonorrhea.

LARREA DIVARICATA Cav. — Zygophyllaceae

(Moapa P) yah-temp. (S) ya-temp. (E) creosote bush.

This shrub, occuring commonly in the southern part of Clark County, is the most favored source of remedies by the local Indians.

At Beatty, the Shoshones drink a tea from boiled leaves for

venereal disease, for colds, and to stimulate urination.

At Moapa, the Paiutes consider the plant to be a cure-all. For rheumatism the leaves are soaked in water and the liquid used in the form of a bath or wash, and the same procedure serves for chicken pox. A tea from boiled leaves is taken internally for colds and for bowel cramps. For sores the leaves are dried, pulverized and then sprinkled on as a powder.

At Moapa also, some of the Paiutes boil the leaves of the plant with Ephedra nevadensis to make a tea which is taken internally for gonorrhea. The same decoction, but more condensed, is mixed with badger oil to make a salve for burns. It is said to aid in the formation of the new skin.

LEPTOTAENIA MULTIFIDA Nutt. (*) Umbelliferae

(P) toh-aw-sav-ve; toh-sa; toh-sah-ah; toh-sup. (S) toh-aw-sa-ve; toh-sah; toh-sup. (W) dosa; doza. (E) cough root; Indian balsam.

For the preparation of medicinal remedies this plant is by far the best known in the State of Nevada, being used both by the Indians and the whites. All Indian communities endeavor to maintain a stock to last through the winter months, for which purpose the root is peeled, sliced and laid away to dry. A number of years ago it was possible to purchase in local drugstores a commercial preparation of the plant under the name of 'Balsamea.'

Of all the ailments to which the Indian is heir, probably there is none which has not been treated in one way or another by remedies prepared from the root of this plant. Although considered universally as a panacea, the medicines most commonly used are for coughs and colds, and disorders such as hayfever, bronchitis, influenza, pneumonia, and tuberculosis. The more generally used remedy for such ailments is prepared by merely boiling the dried root and administering the decoction as a tea. A favorite method for relieving congestion of the lungs or of the nasal passages, and also for asthma, is to smoke the pulverized roots (sometimes mixed with tobacco) in cigarettes or in pipes. See also under Nicotiana attenuata. Another method is to inhale the fumes of the root which is burning in a bed of live coals. Some people attempt to improve this type of remedy by mixing the root with parts of other plants; for instance in the preparation just described, it is customary sometimes to add resin of Pinus monophylla to the burning roots (Austin and Summit Lake - P). In this connection, a Paiute at Austin, said that the pitch is mixed with the finely cut root and then thrown into a bed of live coals. The patient arranges a cloth over his head and leans over the burning material to inhale the fumes.

Frequently raw pieces of root are chewed for sore throat.

The root segments of the Leptotaenia are mixed with those of Osmorhiza occidentalis and boiled to make a decoction which is taken as a tea for colds (Elko, Ruby Valley, and Smith Valley - P & S), for sore throat (Yerington - P), for pneumonia (Elko and Ruby Valley - S), and for influenza (Battle Mountain - S). In another combination they are boiled with young, terminal twigs of Juniperus utahensis to make a tea for influenza (Manhattan - S). Also for influenza see under Chrysothamnus viscidiflorus. For colds and pneumonia see also Artemisia tridentata.

A treatment for gonorrhea suggests a combination of the Leptotaenia roots with plants of Achillea lanulosa. They are boiled together and the liquid taken as a tea (Ft. McDermitt - P). There were other similar treatments for unspecified venereal diseases: the Leptotaenia root alone was boiled to make a tea (Lovelock and Wells - P & S), or boiled with roots of Osmorhiza occidentalis (Fallon - P), or the fresh roots were boiled with those of Rumex venosus (Nixon - P). This last was claimed to be an unfailing cure.

The root is also the basis of a number of antiseptics. The decoction can be employed as an external wash for smallpox (Duckwater - P & S) and sometimes the leaves also are added to the brew (Ely - P & S). As a healing agent for skin rashes, cuts or sores the decoction of the boiled root may be used as a wash (Mason Valley - P) or the raw root may be pulped and applied directly for cuts (Winnemucca - P), or even the freshly cut slices may be placed on sores and then dusted with a fine red earth known as 'pee-sha-pee' (Reno - P.) In still other communities the oily sap from the sliced fresh roots is carefully gathered and used on cuts and sores (Dresslerville, Gardnerville, Nixon, and Reno - P, S & W) or if fresh roots are not available the dry roots are boiled and the oil skimmed from the surface of the water.

This same oil is employed for trachoma or gonorrheal infections of the eye, using one drop of the oil in each eye (Elko - S).

Formerly in some communities the fresh root was ground to a pulp and applied to the severed umbilical cords of new-born babies (Dresslerville and Gardnerville - W).

For swellings, sprains or rheumatism the crushed root, raw or boiled, can be utilized as a poultice and sometimes, as an additional measure, the water from the boiled root served for a wash (Reno, Owyhee, and Smith Valley - P & S).

A number of different settlements cure distemper of horses with this root (Elko, Ely, Nixon, Schurz, and Tonopah - P & S). Ordinarily the method is to run the horse to accelerate the breathing, then the animal is forced to inhale fumes from the burning roots by plac-

ing the smoldering material in a bucket and covering the horse's head with a cloth, or better yet, to employ a nosebag. Some of the Indians amplify the remedy by adding parts of other plants, such as roots of Angelica breweri, or resin of Pinus monophylla (Elko - S).

LEUCOCRINUM MONTANUM Nutt. Liliaceae

(P & S) see-goo-ah-gump. (E) sage lily; sand lily.

Only one individual was encountered who knew a remedial application of this plant. According to him the roots are ground to a soapy consistency and placed directly on sores or swellings (Owyhee - P & S).

LIBOCEDRUS DECURRENS Torr. Pinaceae

(P) pah-wah-pee. (E) California incense cedar.

There was secured but one report of a remedy and that of a rather dubious efficacy. Some families are said to make a tea from the boiled twigs and bark, this being taken as a protection against infection from any contagious disease such as smallpox (Reno - P).

LIGUSTICUM FILICINUM S. Wats. (*) Umbelliferae

(P) wadda-e-gopa. (E) lovage.

It was rather obvious that the Indians do not always distinguish between this and other closely related plants. Even the Paiute name 'wadda-e-gopa' meaning - 'chipmunk tongue' is assigned to at least three different plants.

According to Anna Downington, a Paiute woman of the Reno Colony, the root of this plant can be made into a cough remedy.

LINUM LEWISII Pursh Linaceae

(P) booie-ah-nooma; booie na-tizuah; po-eena-tiz-uah. (S) boo-ee nut-tah-zoom; boo-ee nut-zoo; boo-eep nut-zoo; poo-ena nut-tiz-zooh. (E) wild flax.

This plant is known to the Paiutes and Shoshones throughout the State as the source of a remedy to treat sore eyes, in fact, some of

the names usually applied to the plant mean, when translated, 'eye medicine.' There are various methods for preparing the eye wash: the whole plant is mashed and soaked in cold water (Elko - S); the whole plant is boiled (Ely - P & S); the tops of the plant are soaked in cold water (Fallon - P); or the tops are steeped slightly (Smith Valley - P); the leaves may be boiled (Summit Lake - P) or only steeped (Stillwater - S); and finally, only the boiled roots are employed (Beatty - S).

Another remedy, also rather generally known, consists in making poultices of the crushed fresh leaves to reduce swellings (Ft. McDermitt, Owyhee, and Summit Lake - P & S). According to one report both the stems and leaves are employed for this purpose (Winnemucca - P).

Poultices were especially employed for goiter (Summit Lake - P) and for gall trouble (Austin - S). At Austin it is claimed that the plant is used for this purpose only, the poultice being applied externally over the region of the gall bladder. The Shoshones here call the plant 'boo-eep nut-zooh' meaning - 'gall medicine.'

LITHOSPERMUM RUDERALE Dougl. Boraginaceae

(S) nem-ish-aw; nom-ish-aw. (E) gromwell; stoneseed.

Among most of the Shoshones the root of the plant is a favorite remedy for diarrhea. For this purpose the root may be boiled or soaked in water. The potion is considered to be expecially helpful in stopping bloody diarrhea.

In one settlement it is believed that the plant has contraceptive properties (Owyhee - S). It is said that the cold water infusion from the roots, taken daily as a drink for a period of six months, will insure sterility thereafter.

LUPINUS ssp Leguminosae

(P) quee-duh-kwana. (S) quee-duh-quen-ah. (E) lupine.

Data was secured from only two places and in both the plant was employed as a remedy for failure in urination (Beatty and Owyhee - P & S).

LYGODESMIA SPINOSA Nutt. Compositae

(P) i-goon-zon-um; pee-ee-ah-gub; see-ko-pe; too-man-abbe; too-wan-oo-pah. (S) tah-be-sen-a-goh; tin-ah-ee-go. (W) wa-ha-nane. (E) Indian gum plant; skeleton weed.

This plant is best known to the Indians for the rubber-like exudate which is collected from the stems and roots and used as chewing gum.

A cottony fuzz is gathered from the base of the plant and placed on boils and running sores to promote healing (Fallon, Schurz, Smith Valley, and Yerington - P). One informant claimed that the fuzz was inserted sometimes in tooth cavities but no explanation was given to this section (Schurz - P).

A few scattered Indians employ the plant for other remedial purposes but there is no agreement among the data thus obtained, each person having a different purpose in mind. The boiled roots, often mixed with other plants, are employed as a tea, taken internally as a tonic (Ely - S); the same solution used hot as a wash was said to reduce swelling (Hawthorne - P); or a solution prepared by boiling the tops of the plant was taken internally to stop vomiting (Austin - S) as a physic and emetic, or to stop diarrhea (Schurz - P) and finally as an eyewash (Beatty - S).

MARRUBIUM VULGARE L. Menthaceae

(P) quee-ban-oob. (E) horehound.

Whipping aching portions of the body with the branches served as a counter-irritant to stimulate blood circulation, according to data from one settlement (Schurz - P).

MENTHA CANADENSIS L. Menthaceae

(P) pah-quanna; pah-quanna-ah; pah-quanna-ah; pah-quanna-av; quee-boh-nay; toh-see-ten-ava. (S) pah-guanna. (W) pah-da lo-yi. (E) common wild mint.

The most important medicinal use of this mint among the three tribes is in the treatment of stomach-ache, colic of babies, indigestion, diarrhea and like disorders. Usually the tea is made from the tops of the plant, although sometimes only the leaves or the roots are utilized. Once it was reported that the medicine was prepared by adding finely ground, ripe seed to a half-cupful of hot water (Fallon - P). The material may be either fresh or dried; in

fact, many families lay in a supply of the plant for the winter months. The exact method for making the brew was not usually indicated, most of the Indians saying merely that the material was boiled and that the tea could be taken either hot or warm, weak or strong. According to one report a half-cupful of the strong tea will stop diarrhea (Dresslerville and Gardnerville - W).

The same brew, also taken as a drink, has a widespread employment for a number of other minor disorders such as headaches, colds and fevers.

Headaches are further relieved by smelling the crushed leaves, sometimes the leaves being actually inserted in the nostrils (Fallon - P), or by binding crushed stems to the head (Fallon and Yerington - P), and finally, by using the solution as a soothing wash (Schurz, Smith Valley, and Yerington - P).

In two communities it was considered efficacious to insert crushed leaves in the nostrils to clear up head colds (Nixon and Schurz - P).

External applications of the liquid to reduce fevers were practiced (Ely, Owyhee, and Schurz - P & S).

In one instance it was reported that the leaves could be chewed for sore throats (Schurz - P), while in two others the crushed leaves were applied as poultices to reduce swellings (Fallon and Moapa - P).

MIMULUS GUTTATUS DC. Scrophulariaceae

(S) unda-vitch-quanna; pahn-zah-quatum. (E) monkey flower.

There are a few scattered areas in which some of the people are said to use the crushed leaves as poultices for wounds or rope burns (Austin, Elko, and Owyhee - S).

MONARDELLA ODORATISSIMA Benth. Menthaceae

(P) see-boo moh-goon-up; too-buzz-see-be. (S) guy-moh; toya-abba-hobe. (E) western balm.

The remedy most frequently prepared from this plant is a tea taken for colds, as is true also for a number of the other mints in the State. The decoction is greatly favored too for indigestion, gas pains or any minor digestive upset.

One Indian said that a cupful of the tea from boiled branches

would react as a physic (Elko - S); another employed the tea as a general tonic (Battle Mountain - S); still another considered it specifically as a blood tonic (Austin - S); and also the solution was said to be suitable as an eyewash for soreness or inflammation (Fallon and Lovelock - P).

NICOTIANA ATTENUATA Torr. Solanaceae

(P) bah-moh; poo-ee-bah-hoon; poo-ee-bah-moh; poo-wee-buh-hoon; toh-quoh-quah. (S) new-wha bah-hoon; poo-ee-pah; pue-bax. (E) Indian tobacco; wild tobacco.

Although ordinarily employed by the Indians as a smoking tobacco, the plant has a number of remedial applications, most of them being external.

A favorite remedy is to apply the crushed leaves as a poultice to reduce swellings, especially those due to rheumatism (Elko, Schurz, and Winnemucca - P & S), although one Indian used the crushed seed as a liniment for such conditions (Schurz - P).

The poultice of crushed leaves was reported in the treatment of toothache by placing the material along the gum (Ruby Valley - S) and the same material was said to serve for eczema or similar skin infections (Winnemucca - P). The chewed leaves are sometimes applied to cuts (Owyhee - P & S), and they are bound on snakebites after the poison has been sucked out (Lovelock - P).

The decoction from the boiled leaves can be administered as a healing wash for hives or other skin irritations (Owyhee - P & S), and one person claimed that dropsical conditions could be relieved in the same manner (Yerington - P). The pulverized tobacco dust was sprinkled on sores (Nixon and Reno - P).

Aside from smoking the dried leaves for pleasure, some of the Indians believe that it also cures colds (Lovelock, Nixon, and Smith Valley - P), especially if the mixture is enriched with dried Salvia carnosa or with bits of 'toh-sah' root (Leptotaenia multifida). The addition of the last plant is suitable for asthma (Nixon and Rawhide - P) and especially so for tuberculosis (Reno and Ruby Valley - P & S).

Of remedies to be taken internally there was scant mention. Indians of two tribes reported that a tablespoon of the solution from the boiled leaves, taken three times a day would expel worms (Elko and Ruby Valley - P & S).

A weak solution of the leaves, either boiled or raw, was said to be a physic or an emetic (Hawthorne, Owyhee, and Winnemucca - P

& S).

A compound remedy for treatment of a foot infection, ordinarily known as athlete's foot, was described by a Paiute family of Schurz. For this purpose a wet dressing was made by crushing fresh Nicotiana leaves with the tubers of a plant called 'see-nee buh-buh.' Judging from the description of the plant and its habitat, and from the appearance of the dried tubers, which were seen, it is probably the nut grass, Cyperus esculentus. The nut-grass tubers, sometimes known as 'too-boozie' are an important item of food among the Paiutes.

OPUNTIA BASILARIS Engelm. & Bigel. Cactaceae

(S) nah-vomb; wo-gay-be. (E) beavertail cactus.

The pulp from the interior of the plant is sometimes scraped out and applied directly as a wet dressing for cuts and wounds (Beatty - S). The dressing is changed frequently. It is claimed that this treatment deadens the pain,promotes healing. One woman at Lida said that her grandmother had employed this treatment, too, but that the plant used had been some other species of Opuntia. From this it might be assumed that the pulp from any cactus would suffice.

Although not belonging within the scope of the present paper it is of interest to record a method of removing warts and moles. This fine fuzz-like spines are rubbed into the affected part (Beatty - S).

OROBANCHE CALIFORNICA Cham. & Schlecht. (*) Orobanchaceae

(P) tue-hoo; too-hoo. (S) doo; too-ee. (E) broomrape.

In the course of these studies several species of Orobanche were secured from the Indians but for the sake of brevity all the data is listed here under a single name. It seems certain that all of the species are employed indiscriminately for the purposes of the Indian.

The tender portions of the stalk are greatly prized by the Indians as food but there were only meagre reports of medicinal uses. The decoction from either fresh or dry plants was taken as a treatment for colds, pneumonia or pulmonary trouble (Austin, Nixon, and Reno - P).

OSMORHIZA OCCIDENTALIS (Nutt.) Torr. Umbelliferae

(P) pah-wah-cape; pah-wah-capish; pah-wah-gah-bish; wadda-eye-gop; worra-eye-gob. (S) bah-soh-wip; bas-oh-gway; bas-oh-wip. (W) oo-chu-lee mah-too. (E) sweetroot.

As a source for remedies, this plant holds favor among all the Indians. It is employed in much the same manner as Leptotaenia multifida, that is to say the root decoction is taken as a cure for colds and other pulmonary disorders, also for pneumonia and influenza. Sometimes the pulverized root is smoked to clear up a cold (Elko - S) or it is chewed for sore throat (Elko, Ruby Valley, and Schurz - P & S). At Ruby Valley one Shoshone family prepared a tonic from the boiled roots. This, with sugar added, was taken hot to ward off colds and sore throat. The same family administered the hot tea, several teaspoonfuls at a time, for whooping cough.

In treating the ailments mentioned above the effect of the remedies are enhanced sometimes by the addition of other plants - see under Artemisia gnaphalodes and Leptotaenia multifida.

In most communities, the Shoshones and Paiutes look upon the root decoction as an important treatment for venereal disease, although many of the informants indicated that a long period of time was needed for the purpose. The usually indicated dosage was a half-cupful daily. In one locality the solution was prepared merely by soaking the roots in cold water for a day (Upper Reese River - S). See also under Leptotaenia multifida.

The root decoction is given also to reduce a fever (Fallon, Smith Valley, and Wells - P & S), and in one community to regulate menstrual disorders (Upper Reese River - S). The hot tea, taken in doses of less than a half-cupful at a time is the standard fever remedy among the Paiutes at Fallon. (See also under Artemisia gnaphalodes). The tea can be used also for a number of minor indispositions, such as diarrhea (Elko and Ruby Valley - S) and chills (Fallon - P). Indians all over the State take the tea as a palliative for stomach-aches, gas pains, or indigestion. The tea is said to react either as a mild, or strong physic, depending upon the concentration of the brew.

Applied externally as a hot wash, the solution was said to kill head lice of humans (Ruby Valley, Wells, and Winnemucca - P & S), and it was reported once as a dip to kill chicken lice (Owyhee - P). Also the liquid is an external antiseptic for measles (Battle Mountain, Beowawe, and Ely - S), for venereal sores (Reno - P), skin rashes (Fallon - P), and as an eyewash (Elko and Fallon - P & S).

The raw roots are pulped, sometimes heated, and applied as a wet dressing for sores, cuts, bruises, swellings, and snake bite (Ely, Lovelock, Manhattan, and Reno - P & S). One report claimed

that a piece of the raw root applied to an aching tooth would reduce the pain (Round Mountain - S) and another that pieces of fresh root inserted in the nostrils would relieve a headache (Wells - S).

PAEONIA BROWNII Dougl. ex Hook. Ranunculaceae

(P) bah-tee-pah; bah-tee-pee; bah-tee-vah; pah-too-bah. (S) bah-div-ah; but-tu-vah; pah-dib-ah; pah-nah-din; witch-ah-so-oh. (W) doo-yah-gum-hoo; tue-ago-nomo. (E) wild peony.

For internal treatments, the decoction from the boiled roots can be taken for tuberculosis (Dresslerville, Stillwater, and Summit Lake - P, S & W), venereal disease (Manhattan - S) for coughs and nausea (Owyhee - P & S), to stop diarrhea (Elko - S), and for kidney trouble (Elko and Winnemucca - P & S). A Shoshone at Elko, claimed that a three year treatment by this method had been successful in curing her husband of kidney stones. It might be supposed that the informant was confused as to the exact nature of this disease but in order to illustrate clearly the pains suffered by her husband she she picked a stone from the ground and placed it over her left kidney. She said that he had passed such a stone and that he had been very ill. Since that time he has had no further trouble.

The root decoction was employed as a lotion for headaches (Reno - W), as a liniment for swellings (Reno - P), and as a gargle for sore throat and as a wash for sore eyes (Wells - S). The eyewash was prepared sometimes merely from a cold infusion of the soaked roots (Battle Mountain and Ely - P & S).

The mashed root served as a poultice for boils (Battle Mountain - S) and for deep cuts or wounds (Ruby Valley - S). However, a more preferred medication for cuts, wounds, sores, and burns, consists in applying a powder obtained by pulverizing the dried roots (Austin, Battle Mountain, Beowawe, Elko, and Smokey Valley - S).

PARRYA MENZIESII (Hook.) Greene (*) Cruciferae

(P) toya-hoe-gob. (E) daggerpod.

The Indian name was given by two different Paiutes but it is interesting to note that the first syllable 'toya' means 'mountain' in the Shoshone language.

The remedial data secured indicated that the boiled roots could be taken as a tonic after childbirth (Winnemucca).

PEDICULARIS ATTOLENS A. Gray Scrophulariaceae

(W) wem-she. (E) elephant head.

One Indian said that a tea from the boiled leaves could be taken as a tonic (Dresslerville - S) while another, although slightly doubtful about the identity of the plant, believed it to be the one employed, raw or boiled, as a poultice for cuts, sores, and swellings (Dresslerville and Gardnerville - W).

PEDICULARIS CENTRANTHERA A. Gray Scrophulariaceae

(S) gooie-took-ie. (E) lousewort.

A single report indicated that the root was boiled to make a tea which is given to children for stomach-aches (Wells - S).

PENSTEMON DEUSTUS Dougl. ex Lindl. Scrophulariaceae

(P) too-buzz-sah-wop; toe-buzz-see-bee. (S) dim-bah-sego; dim-bah-shego; too-buzz-see-bee. (E) white penstemon.

Often the plant is known to the Shoshones under the name 'tim-bah-hay nut-zoo' meaning 'bad disease medicine'. Apparently it is one of the more important remedies for venereal diseases. Medicine men collect the plant, grind it to a fine powder and sell it to other Indians in small quantities for as much as five dollars. Since the material in finely powdered, the uninformed Indians are unable to recognize the plant and thus the source of income for the medicine man is secure. Great interest was displayed whenever a group of Indians were shown a pressed specimen of the whole plant.

For venereal diseases the plant has a number of different applications. In two reports the whole plant was brewed and taken internally as a tea (Wells - S). A solution of boiled stems and leaves served as a douche for both men and women (Tonopah - S) although in this particular instance it was not made clear if the treatment was given as a preventive or as a cure. One informant described a treatment for gonorrhea in which a slender cylinder, whittled from the root, was inserted in the urethra (Manhattan - S). For another treatment of gonorrhea see under Gilia congesta. For venereal sores the treatment may be in the form of a poultice made from the green leaves (Peavine Creek and Smokey Valley - S) but usually it consists in using the pulverized leaves as a powder (Peavine Creek, Stillwater, Tonopah, and Wells - S). In fact the powder or poultice treatments are preferred by most of the Shoshones and Paiutes for any chronic sore, skin eruptions, itch, exzema

or similar troubles.

A medicine woman told of having cured a serious ear infection by dropping into the ear, one-half spoonful at a time, a strong solution made from boiled stems and leaves. The treatment was repeated three times a day and the patient soon recovered (Tonopah - S).

For swellings, either the green or the dried plants could be used as poultices (Ft. McDermitt and Summit Lake - P). The solution from boiled plants served as a hot bath for sore feet, swollen legs, and swollen veins (Smokey Valley and Wells - S). The solution was used also as an eyewash (Fallon and Owyhee - P & S).

Taken internally as a tea, the solution was recommended for stomach-aches, expecially for children (Manhattan, Owyhee, Summit Lake, and Upper Reese River - P & S), also for colds and rheumatic aches (Upper Reese River - S).

PENSTEMON EATONI A. Gray — Scrophulariaceae

(S) toh-quoh-bag-um. (E) red penstemon.

The Indian who gave the data, was of the opinion that any red-flowered penstemon would serve in the remedy known to him. The whole plant is boiled and the solution used as a wash for burns (Beatty - S). It is said to allay the pain and to promote the growth of new skin.

PENSTEMON sp. — Scrophulariaceae

(P) toh-quoh-wat-ziv.

Only a root and a few basal leaves were secured from the medicine bag of a squaw but she was unable to recognize her plant among the various pressed specimens shown to her. The root portion is chewed and inserted in the cavity of a tooth to deaden the pain (Moapa - P).

PHLOX LONGIFOLIA Nutt. — Polemoniaceae

(P) moh-goon-zee-eye-ah; quee-duh-too-nabba; toh-hah-tonegan; tu-be-man-up. (S) din-ah-ee-go; eye-go-dun-um; so-go-div-oh-sah; so-go-ron-zee-ah. (E) wild phlox.

It is quite likely that any of the phlox group can be used by

the Indians for their remedies but the majority of the specimens collected in connection with these studies belonged to the single species here listed.

The remedy most frequently prepared from this plant is an eye-wash, and it is usually made merely by soaking the scraped roots in cold water but in a few cases the material was steeped or boiled.

The cold water infusion of the roots was mentioned for stomach-ache of children (Manhattan - S) but in one community the roots were boiled (Fallon - P).

To stop diarrhea the cold water infusion of mashed roots was reported once (Eureka - S) but sometimes the solution is made by steeping the root (Stillwater - S).

The boiled root preparation was taken as a physic and as a treatment for venereal disease (Yerington - P).

The entire plant was boiled and the solution taken as a tea for stomach disorders (Stillwater - S).

PHRAGMITES COMMUNIS Trin. Gramineae

(Moapa P) moh-goh-koh. (P) wo-cau-cau-pu (E) common reed.

The reed is best known to the Paiutes as the source of a sugar which is called 'be-ha-bee' or sometimes 'bee-havie.' In the fall of the year the leaves and stems of the plant are profusely encrusted with a grayish exudate. The Indians gather this substance by shaking or beating the plants over a cloth. The exact origin of the exudate is not entirely clear but apparently it is nothing more than dried plant sap which oozes out through the punctures made by aphids.

Ordinarily the Indians eat the exudate as a candy but there were two reports of remedial application. The sugar was given to pneumonia patients with the idea that it loosened phlegm or that it soothed the pain in the lungs (Lovelock - P).

PHYSARIA CHAMBERSII Rollins Cruciferae

(P) tah-rah-gee-noob. (S) tah-pah-day. (E) twinpod.

This is used solely as an eyewash for soreness or sties. Usually the solution is prepared by soaking the dried or pulverized leaves in cold water (Eureka, Lovelock, Manhattan, and Stillwater - P & S) but in two reports the whole plant was boiled for the purpose (Duck-

water and Fallon - P & S) while others indicated that the whole roots were soaked in warm water (Fallon - P) or the scraped roots in cold water (Monitor Valley - S).

PINUS ARISTATA Engelm. Pinaceae

(S) wong-govie. (E) bristlecone pine.

The pitch is heated and applied as a dressing for sores and to draw out boils (Wells - S).

PINUS MONOPHYLLA Torr. & Frem. Pinaceae

(P) sahn-a-pah wah-pee; too-bee; tu-ba; tu-bap-ee; wah-pee.
(S) wah-pee. (W) ah-gum; wah-pee. (E) singleleaf pinyon.

The resin of this tree is one of the more important sources of remedies for the Indians and holds almost equal importance with Leptotaenia multifida in the treatment of colds. For this purpose the resin is boiled to make a hot tea which is then taken internally (Fallon and Schurz - P). The straight resin brew is little used, however, most of the Indians preferring to prepare the remedy by adding other plants, apparently for the sake of palatability.

In the combination cold remedy, Juniperus utahensis seems to be a favored plant, the pine resin being boiled with terminal twigs of the juniper (Battle Mountain and Lida - S). With this plant, too, it is often the custom to employ the pine needles and young twigs in place of, or in addition to, the resin (Basalt, Beatty, Lida, and Yerington - P & S). See also under Artemisia gnaphalodes, Heracelum lanatum, Leptotaenia multifida, and Salvia carnosa.

The pure pine resin potion is esteemed also in treating venereal disease (Belmont, Manhattan, Winnemucca, and Yerington - P & S), although there were statements to the effect that the pure resin could be chewed (Fallon - P) or even swallowed whole as pills (Fallon and Gardnerville - P & W). At the last named place the Washoes said that gonorrhea could be treated by swallowing the clear, fresh resin or by drinking a tea made from boiled needles or wood.

The boiled resin tea was indicated as an internal medicant for a number of other ailments, such as rheumatism (Lovelock - P), tuberculosis and influenza (Schurz - P), chronic indigestion, bowel trouble, fevers, and nausea (Fallon, Manhattan, and Schurz - P & S).

To stop diarrhea the resin could be swallowed in the form of pills or else boiled and taken as a tea (Fallon and Schurz - P).

See also under Rumex crispus.

For general debility, or for post childbirth period, the resin tea was deemed valuable as a tonic (Reno, Schurz, and Winnemucca - P).

A kidney medicine was prepared by boiling pine resin with terminal twigs of Juniperus utahensis (Wells - S). This was taken in doses of one-half glassful daily in alternate weeks.

For a similar preparation, taken for smallpox, see under Cowania mexicana.

Two people said that a sore throat could be soothed by chewing resin (Fallon - P) but sometimes the treatment consisted in applying the pulverized material with a swab (Reno - P).

A dressing of the heated resin as a drawing agent for boils or embedded slivers had widespread practice by both Paiute and Shoshone Indians. The dressing was varied by the addition of crushed plants of Psathyrotes ramosissima (Fallon - P) or again by finely chopped, terminal twigs of Juniperus utahensis (Smith Valley - P).

The hot resin dressing was used commonly for sores, cuts, swellings, and insect bites. See also under Ephedra viridis. The pulverized substance acted as a drying agent when dusted on syphilitic sores (Mason Valley and Schurz - P).

The heated resin smeared on a hot cloth had general utility, in much the same fashion as a mustard plaster, in treating pneumonia (Tonopah - P & S), ruptures (Wells - S), sciatic pains (Lida - S) or any general muscular soreness (Fallon, Manhattan, and Monitor Valley - P & S). The same poultice, with crushed Salvia carnosa leaves added to the resin, was a special remedy for chest congestions due to colds (Fallon - P).

A cure for horse distemper is discussed under Leptotaenia multifida. For antiseptic treatment of rashes, see under Gutierrezia sarothrae, and for measles see under Purshia tridentata.

PLANTAGO MAJOR L. Plantaginaceae

(S) wee-dee; woo-dee. (E) common plantain.

Although the specimens secured in the course of these investigations were all of this species, it would be logical to assume that the others might be employed also by the Indians.

Ordinarily the green leaves of this plantain are crushed with

those of Clematis ligusticifolia to make poultices. These are applied for wounds, bruises, swellings, rheumatism, and boils (Manhattan, Peavine Creek, and Smokey Valley - S). In one settlement the plantain leaves, alone, were mashed as dressings to reduce dropsical swellings and also to bring out the pus of infections (Monitor Valley - S). The whole, wilted leaves bathed in oil were bound on cuts and wounds to promote healing without leaving scars (Reno - P).

There were only two reports of internal applications and in these only the root was considered. In one, the root decoction was indicated as a tea for colds and pneumonia but no details of dosage were secured (Stewart - P). According to the other report, the tea was taken in a dose of a half-cupful or less for stomach trouble (Wells - S).

PLUCHEA SERICEA (Nutt.) Cov. Compositae

(Moapa P) sah-wape. (E) arrowweed.

For indigestion or sour stomach the raw root may be chewed or the material may be boiled and taken as a tea. The tea is given also to stop diarrhea and especially when blood is passed (Moapa - P).

POPULUS TREMULOIDES Michx. Salicaceae

(S) sing-gah-ve; sung-up. (E) quaking aspen.

Of the definite data secured, all pertain to the preparation of remedies for the treatment of venereal disease (Battle Mountain, Belmont, Monitor Valley, and Peavine Creek of the Smokey Valley area - S). Apparently only the bark is boiled to make the tea. As usual, emphasis was placed on the long period of time which is necessary for the treatment to be effective. The daily quantity of liquid to be imbibed varied according to the locality, in some the dosage being merely a half-cupful, while others indicated three half-cupfuls, and one prohibited the drinking of water during the period of treatment (Peavine Creek).

For distinction of species by the Indians see under Populus trichocarpa.

POPULUS TRICHOCARPA T. & G. Salicaceae

(S) sing-gah-ve; sing-gop; so-ho-be; su-nabbe; toya-soo-nap.

(E) black cottonwood.

In the treatment of venereal disease by means of remedies prepared from representatives of the genus Populus, there are two schools of thought. Some of the Shoshones always select the aspen and ignore the cottonwoods while others insist that the aspen has no value whatsoever and that only the cottonwoods can be used. In this connection it must be pointed out that from the data secured in the course of these studies that it is still unclear as to whether all poplar species or only certain of these are suitable. At any rate in a number of cases the data could be connected definitely with P. trichocarpa and for this reason all the data is being assigned provisionally under that species.

The method of preparing the venereal remedy, already given under P. tremuloides, is employed also for the cottonwood bark (Austin, Battle Mountain, Manhattan, Upper Reese River, and Wells - S). At Battle Mountain, however, the informant explained that the bark of cottonwood is mixed with that of Cercocarpus ledifolius to make the decoction. Data secured from an Indian Chief brought forth another variant remedy in which the cottonwood bark was boiled with roots of Wyethia amplexicaulis. This liquid, taken internally as a drink, was considered as an unfailing cure for syphilis (Ely - S).

The bark decoction was reported also as a tuberculosis medicine (Beowawe and Smokey Valley - S), but in the first mentioned place the remedy was considered more effective if bark of Cercocarpus ledifolius was added to the brew.

A solution from the boiled roots was employed as a lotion for headaches (Wells - S). A tonic for the blood and for general debility could be prepared by boiling the bark of cottonwood together with the roots of Rosa woodsii and of Urtica gracilis (Austin - S). The dose was a cupful at each meal.

The single Paiute remedy reported under the genus Populus was a medicine for stomach disorders (Winnemucca - P). It was said that the bark of a tree is cut in many places, the exuding sap being collected and boiled to make the tea.

POROPHYLLUM LEUCOSPERMUM Greene (*) Compositae

(Moapa P) pa-guidobe.

It is claimed that root decoction can be taken as a regulator for delayed menstruation (Moapa - P). The informant pointed out that it was possible to utilize also the stems and leaves but this caused the tea to be very bitter.

PROSOPIS PUBESCENS Benth. Leguminosae

(Moapa P) quee-et-umb. (E) screwbean.

A gummy exudate occasionally found on the bark is soaked in water and the liquid used as an eyewash (Moapa - P).

PRUNUS ANDERSONII A. Gray Rosaceae

(P) sahn-avvie; sahn-nab-bee. (S) bahn-zon-ip. (E) desert peach; Nevada wild almond.

The steeped leaves and sometimes the boiled branches are utilized as a hot tea for colds (Nixon and Winnemucca - P).

A tea prepared from boiled stems and leaves was taken as a dose of one cupful to stop diarrhea (Schurz - P), or the tea could be made from boiled, dried roots and taken in a dose of a half-cupful (Smith Valley - P).

A handful of dried bark strips boiled in a quart of water was considered to be a good winter tonic to ward off influenza (Fallon - P). At the same town a weak solution was taken over a period of days for rheumatism.

Taking a tea from the inner bark or chewing the twigs was thought to be beneficial in the preliminary stages of tuberculosis (Reno - P).

PRUNUS VIRGINIANA var. DEMISSA (Nutt.) Torr. Rosaceae

(P) doh-ish-ah-boo-e; toh-ish-a-booe. (S) tohn-quah-zip; tone-quish-up. (W) si-pah-pah. (E) western chokecherry.

For tuberculosis a tea is prepared from the leaves or bark (Schurz - P) or sometimes from the boiled, dried root (Smith Valley - P).

To treat ordinary coughs and colds a tea can be made by boiling the peeled bark (Upper Reese River - P) or in the same community some of the Indians boil the root shavings for the tea which is taken in quantities of less than a half-cupful several times daily until cured. The dried and pulverized bark is sometimes smoked to secure relief from headaches or head colds (Smith Valley and Yerington - P).

The bark decoction is considered beneficial also for indigestion or an upset stomach (Belmont - S).

A drying powder for sores is prepared by pulverizing the dried bark strips (Lovelock - P).

An interesting treatment for snowblindness was reported by members of two different tribes (Lovelock and Ruby Valley - P & S). The method consists simply in holding the head over a vessel of boiling bark in such a manner that the steam rises into the eyes.

PSATHYROTES ANNUA (Nutt.) A. Gray Compositae

(P) sebu-moh-goon-a-bu. (S) yoh-nip. (E) turtle back.

This small annual plant often is used interchangeable with the species which follows.

The remedies prepared from it have varied application. A brew of the entire plant serves as a medicine for stomach-ache especially in children, and for urinary troubles (Beatty - S), the plant is dried and steeped to make an eyewash (Moapa - P), and the dry leaves can be chewed for toothache (Walker Lake and Schurz - P).

PSATHYROTES RAMOSISSIMA (Torr.) A. Gray Compositae

(P) ka-sigh-yah-gave; sebu-moh-goon-a-bu; see-boh mo-goon-ub; sigh-yah-gava. (S) quoy-hee nut-zoo. (E) turtle back.

This, like the preceding species, is the basis of various remedies. Most commonly, though, the Indians use the plant decoction as an emetic or physic to be taken for stomach-ache, bowel disorders, diarrhea, constipation, biliousness, or liver trouble (Fallon, Hawthorne, Lida, Lovelock, Round Mountain, and Schurz - P & S).

The plant decoction was mentioned twice as a venereal remedy (Hawthorne and Lida - P & S). At Lida it was said that the plant sould be gathered after it starts to turn brown late in the season. The dosage is the usual one-half cupful over a long period of time. At Hawthorne it was claimed that the solution burns the throat and for this reason the medicine is always followed by a drink of warm water.

A single report indicated that the medicine was taken for tubercular cough in a dosage of about one-half cupful a day. It was not considered to be effective for colds (Upper Reese River - S).

As a poultice or wet dressing on swellings or snake-bite the green plant usually is crushed and applied (Fallon, Monitor Valley,

and Tonopah - P & S) but some of the people dry and store a supply for the winter and make the poultice by moistening the pulverized material (Schurz - P).

As a head wash to relieve headaches the decoction is sometimes beneficial (Fallon and Lida - P & S).

For treatment of boils see data under Abies concolor and Pinus monophylla.

PURSHIA TRIDENTATA (Pursh) DC. Rosaceae

(P) huh-na-bee. (S) huh-nabbe; linna-huh-nabbe. (W) bal-nat-san. (E) antelope brush; bitterbrush.

The boiled leaf decoction holds an important place among Indian remedies as a cure for venereal disease. The solution is taken as a tea (Belmont,Fallon, Manhattan, Round Mountain, Schurz, Smokey Valley, Tonopah, and Upper Reese River - P & S). At Schurz the remedy was indicated specifically for gonorrhea. Some of the Indains prepare the liquid in quantity and store it in bottles. Some practitioners prefer a tea made from the inner bark of the trunks (Hawthorne - P) while others use only the boiled roots (Monitor Valley - S). See also Ephedra viridis.

Both Paiutes and Shoshones in many communities drink a tea made from the boiled leaves, or sometimes the twigs, when a physic or emetic is desired. Apparently the degree of action is regulated by the strength of the solution. In one instance the method of preparation was to boil a handful of leaves in just enough water to cover (Beatty - S). Another tribe prepared the physic by boiling ripe, unground seed (Dresslerville - W).

Remedies from this plant are employed extensively in the treatment of smallpox, chicken pox, and measles (Battle Mountain, Beatty, Beowawe, Elko, Ely, Hawthorne, Lida, Nixon, Owyhee, Ruby Valley, Schurz, Smith Valley, and Wells - P & S). In the data secured from these different places there was no general agreement in the method of preparing the remedies nor in the mode of administration.

As an internal medicant for the three diseases named above it was the usual custom to boil the leaves of the plant, although sometimes the leaves and younger branches were combined, and at times even the flowers were included. The quantity of the liquid to be imbibed at a time was not always indicated but apparently the amount should be less than a half-cupful due to the emetic properties of the decoction. In special reference to measles it was believed that the potion hastened the appearance of the rash.

The external phases of these same diseases were treated in some communities also by employing the decoction as a wash.

In fact the external wash was considered universally to be an efficacious antiseptic for any sort of itch, rash, skin eruption, scratch, or insect bite. The green leaves could be mashed and applied as a wet dressing for sores (Lovelock and Upper Reese River - P & S) or the dried leaves were dusted on as a powder (Schurz - P).

Of the compounded remedies, there was an external wash for rashes made by boiling the young twigs of Purshia tridentata with the resin of Pinus monophylla (Beowawe - S). A preparation, concocted by boiling a chunk of dried rat-urine, called 'kah-seep', with Purshia tridentata twigs, was taken internally for smallpox (Wells - S). (Also see 'kah-seep' under Cowania mexicana.) In one instance the internal treatment for measles was the usual brew of leaves and flowers of Purshia tridentata used in connection with an external wash prepared from the boiled roots of Wyethia amplexicaulis (Ruby Valley - S).

To prepare a tea for tuberculosis some of the Indians utilized the inner white bark from the base of the plant (Nixon, Summit Lake, and Schurz - P), but others used only the dried outer bark (Winnemucca - P). See also under Cercocarpus ledifolius.

The leaf decoction was reputed to be a good medicine for colds (Fallon, Reno, and Tonopah - P), for pneumonia (Schurz - P), for liver trouble (Reno - P), and as a blood or general tonic (Fallon and Tonopah - P & S).

One Indian said she had administered a decoction of the inner bark, taken as a drink, to aid the healing of an internal rupture (Tonopah - S). She also recommended this plant in the treatment of milk leg; a small bundle of the inner bark strips were dipped in cold water and sucked, while a solution of the boiled leaves was used as a wash for the swellings.

PYROLA ASARIFOLIA Michx. Ericaceae

(S) goo-ye guanna. (E) shinleaf.

The roots only are boiled to make a tea, which is taken in daily doses of a half-cupful or less over a period of several days as a remedy for liver trouble (Ruby Valley - S).

RHUS TRILOBATA Nutt. Anacardiaceae

(Moapa P) see-a-wimp. (E) squawberry.

The fruits are dried and powdered as an astringent for smallpox sores (Las Vegas - P).

RIBES AUREUM Pursh Saxifragaceae

(P) bo-gumbe; poh-oh-bis. (S) bo-gumbe. (E) golden currant.

Most of the data indicated that the inner bark is dried, pulverized, and applied as a powder to cure sores (Ft. McDermitt - P) but there was one report of its being made into a tea to be taken for leg swellings (Owyhee - P & S).

ROSA WOODSII Lindl. Rosaceae

(P) see-avvie. (S) see-avvie; see-am-bip. (W) pet-soom-a-lee; pet-su-mah-le. (E) wild rose.

A tea from the steeped leaves is highly valued everywhere as a beverage, and there are some Indians who take the drink regularly in the spring as a tonic (Fallon and Mason Valley - P). (See data under Populus trichocarpa). Many individuals make a tea from the boiled roots, or inner bark of the stems, as a cure for colds (Austin, Elko, Minden, Nixon, Owyhee, Reno, Schurz, and Summit Lake - P, S. & W).

In the use of the plant as a tonic or cold remedy, as indicated in the preceding paragraph, the benefit sought by the Indians may well be that of a physic. However, the root decoction has been reported as an effective agent in stopping diarrhea in dosages of one-half to one cupful (Elko and Winnemucca - P & S). It was also given in a dose of a half-cupful at a time for adults, and one tablespoonful for children, four times daily, for several days as a remedy for intestinal influenza and bloody diarrhea (Lovelock - P).

One cupful of the root decoction was given for failure of urination (Beatty - S).

Of great importance to the Indians is the utilization of the plant as a dressing for sores, cuts, wounds, burns, and swellings (Battle Mountain, Ely, Lida, Manhattan, Monitor Valley, Owyhee, Schurz, Smokey Valley, Tonopah, Upper Reese River, and Wells - P & S). For this purpose various parts of the plant, roots, wood or inner bark of the stems are applied either dry or moistened. For

example, an Indian of Upper Reese River, keeps a supply of peeled rose stems in his medicine bag for any emergency that might arise among members of his family. He says that wounds are allowed to bleed a while, after which they are washed. The rose stems are scraped into fine shavings or even to a powder, this material being inserted in the wound and covered with a bandage. He claims that even the deepest wounds yield to the healing qualities of the shavings, and that the swelling and pain is greatly reduced. The wounds finally heal with very little scar.

A single informant reported that the fungous galls of the rose can be mashed to serve as a poultice to cure boils which have been opened (McDermitt Valley - P).

Although the ripe fruits of the plant are well recognized as a food, there was one group of Indians who professed vaguely to an impression that the pulpy seed were soothing to the lower intestinal tract, especially for piles (Beatty - S).

RUBUS LEUCODERMIS Dougl. Rosaceae

(S) see-am-bip. (E) whitebark raspberry.

The stems, pounded to a powder, are employed as a dry dressing for cuts and wounds (Beatty - S).

RUMEX CRISPUS L. Polygonaceae

(P) enga-pah-wee-ub; pah-wee-ah; pah-wee-ub. (S) be-ja-no-ko; dim-woo-ee; enga-pa-wee-ah; new-wha no-ko. (E) curly dock; Indian rhubarb.

As a palliative for rheumatic swellings or pains the pulped root is utilized (Beowawe, Ft. McDermitt, Nixon, Owyhee, Smith Valley, Stewart, and Winnemucca - P & S). Ordinarily the raw root is used as a wet dressing or poultice and sometimes the material is heated before application, or some of the Indians prefer to boil the root before it is pulped. Other of the natives resort to a more active treatment and rub the crushed substance onto the afflicted area, after the fashion of liniment.

For bruises, burns, and ordinary swellings the pulped root is considered as an effective aid when applied as a dressing or poultice (Austin, Battle Mountain, Beowawe, Ruby Valley, Smith Valley, Smokey Valley, Upper Reese River, and Yerington - P & S).

The boiled root is the basis of a considerable variety of reme-

dies to be taken internally. Daily doses of less than a half-cupful of the tea are given for venereal disease (Monitor Valley and Schurz - P & S); a half-cupful repeated several times a day is a medicine for liver complaint (Elko, Ruby Valley, and Wells - S); several cupfuls daily is beneficial as a general tonic (Owyhee and Smith Valley - P & S); while an unspecified quantity was considered to be a blood purifier (Nixon, Owyhee, and Reno - P & S), or a physic (Peavine Creek - S).

To stop diarrhea the ripe seed were ground, boiled in a little water, and eaten (Hawthorne - P); or the finely ground, ripe seed were burned in a pan, mixed with resin of Pinus monophylla and eaten (Fallon - P).

RUMEX VENOSUS Pursh Polygonaceae

(P) tuha-kono-be; tuha-kono-gip. (S) bah-rah-zip; tuha-konobe; wya nut-zoo. (E) sand dock.

Although the Shoshones assign at least three names to this plant they most frequently refer to it as 'wya nut-zoo' meaning - 'burn medicine.'

Everywhere in the State, in fact, the root is the basis of a standard treatment for burns, wounds, sores, and sometimes swellings. Ordinarily the roots are dried, pulverized and applied as a powder but occasionally the raw root is mashed and laid on as a wet dressing or poultice, and sometimes the solution from the boiled root can serve as an antiseptic wash. This treatment was mentioned as a means of drying up persistent sores, specifically those of syphilis.

A tea from the boiled roots is taken for venereal disease (Fallon, Schurz, Upper Reese River, and Yerington - P & S). See also data for Leptotaenia multifida.

The same decoction is valued as a blood purifier or tonic when taken as a tea in doses of a half-cupful daily for two weeks (Fallon, Smith Valley, Upper Reese River, Winnemucca, and Yerington - P & S).

It is taken also for a number of ailments: for rheumatism (Fallon, Schurz, Mason Valley, and Smith Valley - P), for pneumonia, influenza, coughs and colds (Fallon, Schurz, Smith Valley, and Yerington - P), for kidney disorders (Nixon and Winnemucca - P), for inflamed gall bladder (Winnemucca - P), for stomach-ache (Mason Valley, Winnemucca, and Yerington - P), for stomach trouble (Nixon - P) and to stop diarrhea (Smith Valley - P).

SALIX EXIGUA Nutt. Salicaceae

(Moapa P) kah-nav. (P) coo-see suh-ee-be; soo-vee; suh-ee-be; suh-ee-wee. (S) coo-see see-bupe; soo-vee; suh-ee-be. (E) willow.

In connection with these studies a number of different willows were collected but the data secured apparently always referred to Salix exigua, presumably because it is the most common species of Nevada. However, it is not certain that the Indians distinguish between the various species.

In the data relating to the treatment of venereal diseases there is but little uniformity. In fact, some of the remedies would seem to have scarcely any value, this being true in two examples in which the infected person was treated by using a sitz bath made from the boiled twigs (Schurz and Stillwater - P & S). In one community there was administered a tea prepared from the boiled roots and bark (Lida - S) while in another only the roots were utilized (Schurz - P). Gonorrhea was mentioned specifically as the disease to be treated by taking a potion made from the ashes of the burned stems mixed with water (Lovelock - P). In two other instances also, there was mentioned a method of drying up syphilitic or 'running' sores by the application of a powder from the dried and pulverized roots (Schurz and Yerington - P). A root decoction was considered to be a good 'blood purifier' (Reno - P) and the solution from the boiled bark of the roots was described as a regular spring tonic (Moapa - P).

The details of a successful treatment for bloody flux or dysentery were secured from a Paiute woman of Lovelock. She explained that the Indians of Lovelock Valley are frequently subject to this disorder and that the condition had nearly caused the death of some of her relatives. She has employed this remedy often and is convinced that it is a reliable medicine. Willow roots are burned to a charcoal and then powdered. To this is added the finely mashed roots of a plant which is called 'kun-nid-yuh'. This plant, unidentified as yet, is said to be a 'jointed grass, growing in sand dunes'. The mixture of charcoal and the 'kun-nid-yuh' is rolled into pills of about a half-inch diameter. The dosage is three pills daily over a period of several successive days. It is believed that the charcoal lines the walls of the intestines and thus promotes a soothing and healing action.

When the 'kun-nid-yuh' roots are not available it is possible to substitute ordinary wheat flour. This is browned in a heavy skillet and then thoroughly mixed with the powdered charcoal from the willow roots. The dosage of this for children is a teaspoonful three times daily for several days and then one a day for a week. The same remedy is given for intestinal influenza and for failure to urinate.

A similar remedy was reported from another locality as a treatment to stop diarrhea (Fallon - P). In this case, however, the willow charcoal was secured by burning the young, upright stems. A half-cupful of the material was taken in water (Fallon - P).

For treatment of lumbago see under Chamaebatiaria millefolium.

Young twigs steeped in a quart of water with a teaspoonful of salt served as a laxative, or the woody portion of the stems was boiled to prepare an excellent physic (Ft. McDermitt - P). A root decoction was taken for stomach-aches (Manhattan - S).

A fine powder made by grinding the dried bark of the stems was applied as a healing agent to the navels of young babies (Winnemucca - P).

A poultice of mashed roots was applied to the gums as a toothache remedy (Elko - S).

A solution from boiled leaves and young twigs, when rubbed vigorously into the scalp was said to be an effective measure against dandruff (Ruby Valley - S).

SALVIA CARNOSA Dougl. Menthaceae

(Moapa P) see-goo-we-up. (P) kung-nuh sah-wabbe; too-bee shegin-oop. (S) kahn-gwanna; suh-goo-wee-up; toya-abba-hobe; toya-tim-ba-zip. (W) poh-lo-pee-soh. (E) desert ramona; purple sage.

A cold remedy secured from this plant is highly esteemed by the Paiutes throughout the State. There were also a few reports from the Shoshones (Belmont, Elko, Lida, and Upper Reese River) and one from the Washoes (Dresslerville). The ordinary method of preparing the solution is to boil the leaves, or sometimes the leaves and stems. In one case the material merely was soaked in cold water and several times the data specified steeping instead of boiling to make the solution. Some informants said that the tea should be taken while hot. The dosage was a half-cupful or more a day, the amount probably depending upon the strength of the solution.

Combined remedies for colds were mentioned also; for instance in one, the Salvia leaves were boiled with twigs of Juniperus utahensis (Nixon - P) and in another, the Salvia leaves were boiled with resin of Pinus monophylla (Yerington - P). For treatment of chest congestion see also under Pinus monophylla.

To clear congested nasal passages the dried leaves are crushed and smoked in a pipe (Dresslerville - W). See also under Nicotiana

attenuata.

The tea from the leaves, or sometimes the leaves and stems, is taken for many other ailments and disorders, the principal ones being pneumonia (Fallon, Schurz, and Stewart - P), indigestion or stomach-ache (Beatty, Fallon, Manhattan, Mason Valley, Nixon, Schurz, Tonopah, and Yerington - P & S), venereal disease (Fallon and Schurz - P), fevers and influenza (Schurz - P). For headaches the tea may be drunk (Fallon and Nixon - P), the hot fumes inhaled (Lovelock - P), or the solution used as an external wash (Hawthorne and Lovelock - P).

The hot tea is administered as a drink for sore throat of children and the hot solution is used also as an external wash on the head and throat (Tonopah - S).

In addition to the hot tea to be taken internally for coughs, colds, and fevers, a group of Indians recommend the application of a poultice of the material on the head and chest (Schurz - P).

A special method for treatment of earaches, as related by one informant, consisted in dropping the solution slowly into the ear and by binding on a hot compress of the boiled material (Winnemucca - P).

The leaf decoction was reported once as an eyewash (Hawthorne - P).

For swollen leg veins, the tops of the plant are boiled and made into a poultice (Smith Valley - P), or the liquid only is applied as an external wash (Beatty - S).

SAMBUCUS MELANOCARPA A. Gray — Caprifoliaceae

(P) koo-booie-du-ney; koon-oo-gip; who-booie. (S) duh-he-yemba; du-yembe; hoh-tiem. (E) elderberry.

The flowers are boiled in enough water to cover them and the resultant liquid taken frequently for tuberculosis (Beowawe - S). The same solution is taken as a tea for colds and coughs (Fallon and Tonopah - P & S), and as a spring tonic for children if used every day over a period of several weeks (Fallon - P).

The ripe berries, dried and stored for winter months, are eaten to stop diarrhea (Schurz - P).

The bruised leaves can be used as a dressing for bruises, and it is said that the same treatment will stanch the flow of blood from a wound (Ft. McDermitt - P).

The roots, boiled until soft and then mashed, can be employed as a poultice for caked breasts in women (Ft. McDermitt - P), or as dressing for cuts and wounds (Tonopah and Yerington - P).

A root decoction taken as a tea is considered to be a good blood tonic (Wells - S) and the same remedy will stop dysentery (Stillwater - P & S).

SAMBUCUS VELUTINA Dur. & Hilg. Caprifoliaceae

(P) hoo-boo. (E) elderberry.

An infusion of the dried flowers is taken as a tea to cure diarrhea (Nixon - P).

SARCOBATUS VERMICULATUS (Hook.) Torr. Chenopodiaceae

(P) tah-uh-be; toh-no-be; tone-oh-bee. (E) greasewood.

Only two Indians were encountered in Nevada who know of a medicinal use for this shrub; both were Paiutes living at Schurz. They claimed that it was a remedy plant of the past generation. According to one the whole plant was burned to a charcoal, powdered, mixed with water, and taken three times daily to stop diarrhea. Another prepared the charcoal from the branches only and also prescribed the drink for diarrhea and particularly for rectal bleeding.

SARCODES SANGUINEA Torr. Ericaceae

(E) snow plant.

An unverified report indicated that the dried plant was boiled as a tea which is taken by pneumonia patients (Owyhee - P & S). It is supposed to build up the blood. (See remarks under Corallorrhiza maculata.

SMILACINA STELLATA (L.) Desf. Liliaceae

(P) esha-tone-ub; pee-havvie; quoh-quavvie; quoy-quavvie.
(S) wah-toh-voh; wom-boh-nomb. (W) dama-go-go-yes; she-gimba.
(E) false solomonseal.

For boils, sprains or swellings it is customary to make a poul-

tice from the fresh roots, or by soaking the dried material in hot water (Nixon, Owyhee, Reno, Schurz, and Stewart - P).

As a remedy for earache the pulped material was forced through a cloth directly into the ear (Summit Lake - P).

A powder from pulverized roots stanched the bleeding of wounds (Lake Tahoe - W).

The liquid from mashed, soaked roots is employed as a wash for eye inflammations (Reno and Ruby Valley - P & S), also the solution was said to have antiseptic value in cases of blood poisoning (Reno - W).

A tea from the boiled roots was taken internally for various purposes, the more important being to regulate menstrual disorders (Elko, Reno, and Summit Lake - P &S), to cure venereal disease (Elko - S), and to relieve stomach trouble (Owyhee - P & S). The concentrated solution was considered to be a good tonic (Gardnerville and Dresslerville - W).

In former times it was believed that conception in women could be prevented by drinking a tea from the boiled leaves. The dosage was one-half cupful daily for a week (Upper Reese River - S).

An exudate produced by the plants was eaten as candy by children (Fallon and Yerington - P), and there was one report of its use as a cough syrup (Schurz - P). The Indians cut the plants, pile them on a canvas to dry, and then beat them with a stick to cause the sugar nodules to fall off. The exact nature of the exudate was not investigated.

SOLANUM VILLOSUM Mill. * Solanaceae

(P) ah-dye-ee na-tizuah. (E) nightshade.

As a remedy for diarrhea, a half-cupful of the ripe fruits may be eaten, or a hot tea prepared from the dried fruit may be taken (Reno - P). The Indians formerly used a tea made from the berries when traveling in areas where the water was not potable.

SPHAERALCEA MUNROANA (Dougl.) Spach. Malvaceae

(S) quoin-oh-combee; quoya-no-comb; see-quoy no-ko; wee-dah-gom; wee-doh-comb. (E) mallow.

All medicinal data for the genus is assigned tentatively to

Sphaeralcea munroana, principally because it has not been decided if the Indians distinguish among the various species of the State and also because definite specific names could not be assigned to most of the pressed specimens secured. Judging from their relatively common occurrence, it should be expected that Sphaeralcea ambigua A. Gray and S. parvifolia A. Nels., also were employed medicinally by the Indians.

A drink from the boiled roots (or the whole plant) was taken as a remedy for the usually unspecified venereal diseases (Belmont, Lida, Monitor Valley, Schurz, Secret Valley, and Stillwater - S) but there was an instance in which gonorrhea was designated as the disease in question (Upper Reese River - S). No details of dosage were obtained but there was mention of the long period of time necessary for the cure. At Lida, one of the informants stated that in the treatment the medicine acted both as a physic and emetic.

An uncertain report indicated that the solution from boiled roots, taken as a tea, would act as a contraceptive (Schurz - S).

A weak solution of the root decoction could be taken at the rate of one cupful at each meal for a period of several days for an upset stomach (Manhattan - S).

The raw root was crushed and applied as a dressing for swellings (Elko - S) or the entire plant was boiled and used as a dressing for wire cuts on horses (Belmont - S).

For treating rheumatism or swellings the plants are wilted in hot water and bandaged on the affected areas (Beowawe - S).

A solution from the boiled leaves was employed as an eyewash (Beatty - S) or it was taken internally as a hot tea for colds (Eureka - S).

SPHENOSCIADIUM CAPITELLATUM A. Gray — Umbelliferae

(P) wadda-e-gopa.

The root is boiled to make a hot tea for pneumonia and sometimes small pieces of the raw root are chewed to relieve sore throat (Reno - P).

STANLEYA PINNATA (Pursh) Britt. — Cruciferae

(P) who-goo-buh; whoo-goop. (S) woy-boh-numb. (E) yellow prince's plume.

Only the root is considered of value for the medicinal preparations, all but one of which were for external purposes, the exceptions being the use of a tonic tea to be given for general debility after an illness (Yerington - P). The pulped root was placed along the gums or inserted in tooth cavities to relieve toothache (Wells - S); it could be applied hot to stop an earache (Battle Mountain - S), and to alleviate rheumatic pains (Wells - S).

During a diptheria epidemic, some years ago, many of the Indians applied the mashed root as poultices to relieve pain and congestion of the throat (Winnemucca - P).

STEPHANOMERIA TENUIFLORA (Torr.) Hall — Compositae

A single report indicated that the entire plant was boiled to make a tea which is taken internally for venereal diseases (Beatty - S).

SUAEDA TORREYANA var. RAMOSISSIMA (Standl.) Munz (*) Chenopodiaceae

(Moapa P) ah-rumb. (S) attem. (E) seepweed.

Other species collected in connection with these studies were S. nigra (Raf.) Standl., and S. occidentalis S. Wats., but since the Indians do not differentiate among the plants, the medicinal data is given here under one name.

The plants are boiled to make a tea which is taken internally for bladder and kidney trouble (Beatty and Yerington - P & S).

The fresh plants are crushed and rubbed on the eruptions of chicken pox to allay the itching and to dry up the sores (Moapa - P).

SYMPHORICARPOS LONGIFLORUS A. Gray — Caprifoliaceae

(P) sahn-ah-vee. (E) snowberry; waxberry.

The plant is boiled to make a tea which is taken for indigestion or stomach pains (Schurz - P).

TANACETUM VULGARE var. CRISPUM L. Compositae

(E) tansy.

The Indians have no name of their own for this plant but merely call it the 'white mans' medicine'. It is cultivated in their gardens.

The leaves are boiled and a half-cupful of the solution taken for bloody diarrhea (Smokey Valley - S). A cupful of the boiled solution was said to be an emetic (Yerington - P).

The leaves, and sometimes the stems, are boiled to prepare an antiseptic wash which is applied while warm. It is useful also as a wash for any external soreness of the flesh (Elko - S).

TETRADYMIA CANESCENS DC. Compositae

(S) nah-ga-ha-boh-be; pah-vah-bah-hoe-be; tah-beese-ee-goop.

Since the Indians do not always distinguish clearly among the various shrubby composites, it is obvious that the remedial data presented here might apply equally well to a number of different, distinct plants.

A solution from the dried plants, prepared either by soaking or boiling, was taken as a physic (Ely - S).

The boiled solution was reported to be taken for venereal diseases (Austin - S).

TETRADYMIA COMOSA var. TETRAMERES Blake Compositae

(P) coo-see see-bupe; see-goop-e; too-hah-see-goop-ee. (S) coo-see see-bup; coo-see see-bup-e.

A tea made by boiling the stems and leaves is a favorite cold and cough medicine (Battle Mountain, Wells, Winnemucca, and Yerington - P & S).

The same solution is said to relieve stomach-aches (Upper Reese River and Winnemucca - P & S).

Some Paiutes of Winnemucca prepare a special medicine by boiling the Tetradymia stems with young twigs of Juniperus utahensis. A half-cupful is taken three times daily as a remedy for pneumonia, influenza, ordinary colds and especially for a chronic cough.

In one community the thin white bark is scraped off and boiled to make a diarrhea cure (Owyhee - S) while in another the root was boiled for the same purpose and taken in doses of less than a half-cupful (Beowawe - S).

A solution to reduce the swelling from bruises or cuts was prepared by adding Tetradymia stems and turpentine to boiling water. The affected part was soaked in the hot liquid for a long time. (Austin - S).

THALICTRUM FENDLERI Engelm. Ranunculaceae

(S) boss-oo-guay. (W) taba emlu. (E) meadow rue.

Unverified data claimed that a weak tea from the roots, if taken over a long period, would positively cure gonorrhea (Elko - S).

The root decoction was given for colds (Dresslerville - W).

THAMNOSMA MONTANA Torr. & Frem. Rutaceae

(S) mo-gun-du; moh-goon-du-oop. (E) desert rue; turpentine broom.

A tea from the boiled stems can be employed as a medicine for colds and as a tonic (Beatty - S), is reported also to be taken for smallpox (Moapa - P). Occasionally the dried, pulverized stems are mixed with commercial tobacco and smoked for colds (Beatty - S).

An indefinite report suggested that the stem decoction could serve as a wash, or douche, for female complaints (Moapa - P).

TYPHA LATIFOLIA L. Typhaceae

(W) mah-ha-tahl-lahl. (E) cattail.

The young flowering heads sometimes are eaten to stop diarrhea (Gardnerville - W).

URTICA GRACILIS Ait. Urticaceae

(P) quee-bah-noop; quee-quawn-oop. (S) by-wee-ah. (E) nettle.

There were two methods for treating rheumatism, one by using a solution of boiled roots as a wash (Hawthorne - P) and another by applying hot poultices of the mashed leaves (Elko - S).

As a counter-irritant, the plants were switched vigorously on the afflicted portion of the body (Hawthorne - P) but the name of the ailment to be treated in this manner could not be ascertained.

A treatment for colds consists of drinking the solution from boiled leaves (Owyhee - P & S). For use as a tonic see Populus trichocarpa.

Information secured from Paiutes in the vicinity of Reno suggests that this nettle can be employed in the Indian sweat bath treatment for grippe or pneumonia. In this case, apparently, the benefit derives from inhaling the fumes of the plants. (For details of the Indian sweat bath see under Juniperus utahensis).

VERATRUM CALIFORNICUM Durand — Liliaceae

(P) pah-gah-give; pah-gah-give-ah; pah-wy-give. (S) too-vah-sah; toya-div-oh-sah; wanda-vah-sah; wanda-vasa. (W) bah-do-po. (E) false hellebore; skunk cabbage.

This plant is of interest chiefly because the Indians employ it as a contraceptive measure (Beowawe, Elko, Eureka, Ruby Valley, Schurz, Upper Reese River, and Wells - P & S). The liquid is made by boiling the root of the plant. A dosage of one teaspoonful three times a day for three weeks was said to insure permanent sterility. In one locality it was said that the decoction is taken daily by both the man and the woman.

The root decoction was further reported as of value for internal medication when taken as a tea for venereal disease (Fallon - P); also a half-cupful of the concentrated solution was said to be an emetic (Gardnerville - W). The raw root was chewed and the juice swallowed for sore throats, inflamed tonsils, and heavy colds (Smokey Valley - S).

Externally, the mashed raw root is applied as a dressing or a poultice for ordinary swellings, sore throat, enlarged neck glands due to tonsilitis, rheumatism, boils, sores, cuts, sore nipples, infections, and blood poisoning (Elko, Fallon, Lovelock, Ft. McDermitt, Nixon, Reno, Schurz, Stewart, Tonopah, and Winnemucca - P & S). The pulped substance applied with friction serves as a liniment (Lovelock, Owyhee, and Reno - P, S & W), although sometimes it is only the root decoction which is used for this purpose (Fallon and Nixon - P).

The pulped root is in favor as a dressing for snakebites (Elko,

Nixon, Reno, Ruby Valley, and Summit Lake - P & S). A Paiute at Summit Lake places such faith in this treatment that he stores quantities of the sliced and dried roots. When the occasion arises he grinds the root segments and moistens the material with water to make the dressing.

Dry, powdered root sometimes is sprinkled on sores to promote healing (Reno and Winnemucca - P & W).

WYETHIA AMPLEXICAULIS Nutt. Compositae

(S) be-ah-kuk; coo-see ah-kuk. (E) mule ears.

The resinous roots are ground and soaked in water to prepare a solution which is taken as an emetic (Austin and Owyhee - P & S).

As a compounded remedy for syphilis see Populus trichocarpa, and as a wash for measles see Purshia tridentata.

The pulped root sometimes serves as a poultice on swellings (Ruby Valley - S).

WYETHIA MOLLIS A. Gray Compositae

(P) ah-kuk; coo-see ah-kuk. (S) be-ah ah-kuk. (W) shu-gil. (E) woolly mule ears.

The root decoction is used principally as a physic or emetic, the dosage being about a half-cupful (Gardnerville, Lovelock, Upper Reese River, and Yerington - P, S & W). For this purpose there is indication that the solution should be boiled sufficiently to become quite concentrated.

A weaker solution of the decoction is taken for venereal disease, tuberculosis, blood tonic, and colds (Yerington - P).

A compounded remedy to be taken as a tea for colds and fevers is prepared by boiling the chopped roots of the Wyethia with terminal twigs of Juniperus utahensis (Yerington - P).

ZIGADENUS PANICULATUS S. Wats. Liliaceae

(P) koggie-a-den-up; see-goh-oh; tah-beese-e-goh. (S) tah-bah-she-go; tah-vah-see-go. (W) koh-gah-des-ma. (E) foothill death camas.

The bulb of this plant has a quite general use by members of all three tribes throughout the State. Ordinarily the raw bulb is crushed to make wet dressings or poultices for rheumatism, sprains, lameness, neuralgia, toothache, or any sort of swelling. In one case it was reported that ordinary tobacco could be mixed with the pulped material (Owyhee - P). Sometimes the bulbs are roasted before being crushed and then are applied as hot poultices (Reno and Wells - P & S).

Although the Indians are well aware of the poisonous nature of these plants, there are individuals who prepare an emetic tea by boiling the bulbs (Owyhee, Summit Lake, and Upper Reese River - P & S).

(See under the following species).

ZIGADENUS VENENOSUS S. Wats. Liliaceae

(P) koggie-a-den-up; see-go oh-buh. (E) meadow death camas.

The bulb of this species, similarly to the proceding one, is crushed raw for wet dressings or poultices to be used on burns, rattlesnake bites, rheumatic pains, and various swellings. It was reported from Fallon, Ft. McDermitt, Hawthorne, Nixon, and Schurz.

Judging from the similarity of the names applied by the Indians to the two species, it would seem doubtful if they distinguish between them for the purposes of their remedies.

UNDETERMINED PLANTS

(S) goos-pah.

Nothing could be learned about the plant except that it was used for the treatment of venereal disease (Ely).

(S) coo-see gee-nobe. Umbelliferae

The root resembled that of Angelica but was not aromatic.

The raw leaves and roots were crushed and applied as a wet dressing for swellings and venereal sores (Beatty).

(P) nut-sigh-noob.

The plant was described as being an evergreen shrub, about a foot high, which grows in one canyon of the Pine Nut Range bordering Smith Valley.

The stems and leaves are boiled to make a tea which is taken as a physic.

(P) tuh-botza-yo-caw-son. (S) timbe-boon-goo. (E) lichen.

The black, orange, and green lichens are scraped from rocks and soaked overnight in cold water. The solution then is taken internally to stop diarrhea (Tonopah - S).

Another report indicated that the powdered material was applied as a healing agent to sores, especially mouth sores of children (Fallon - P).

See also under Cowania mexicana.

INDEX OF INDIAN MEDICINES AND REMEDIES

ABSTRACT OF PHARMACOLOGICAL RESEARCH (*)

SUBJECT HEADINGS

The research, directed by Raymond N. Bieter at the School of Pharmacology, University of Minnesota (1939 - 1943), was conducted under rather trying conditions because the war situation brought about constant changes in the research staff. Nevertheless a total of 36 publications was completed to present the more important results of the experiments.

In addition, the typewritten annual reports contain a considerable record of the various phases of the screening process. Fortunately most of this can be presented in tabular form (Table I and II).

Generally speaking, the research indicated that although most of the plants had little or no clinical significance, yet some of them did have medicinal value as reported by the Indians. The two outstanding results of the research were: verification of the contraceptive properties of Lithospermum ruderale (6); and the isolation from Larrea divaricata of the important antioxidant, nordihydroguaiaretic acid (1, 10, 14, 16, 19, 21, 22, 30, 32, 33).

Although the original intention had been to collect analysis material for all the plants reported to be used as medicines by the Indians, this goal was not entirely attained (**). Actually only about half of the 194 species listed underwent pharmacological examination. Various reasons combined to interfere with the collecting, lack of funds or time, the size of the State, the scantiness of some of the plants. Then too, to secure 30 to 50 pounds of dry weight of a plant was not always an easy task. Even so, a total of 6500 pounds was gathered and shipped over a period of three years.

(*) Compiled by W. Andrew Archer.

(**) Every effort was made to secure definite botanical determination of the plants, however in Astragalus, Cuscuta, Lupinus, Salix, Sphaeralcea, and perhaps Juniperus, the Indians apparently did not distinguish between the different species.

In the first step of the screening process the dried plant samples were ground to a moderately fine powder, from which the crude fluidextracts were prepared (United States Pharmacopoeia XI), i. e., 1 cc. of the extract contained the extractable matter from 1 gram of the powdered plant. The extracts were utilized in the following:

Antiseptic or bactericidal experiments in vitro.
Chemotherapy of mouse pneumonia.
Effect on circulatory system (blood pressure) of the rabbit.
Effect on smooth muscle (ileum) of the rabbit.
Analyses for alkaloids, and for ascorbic acid.
Miscellaneous investigations.

ANTISEPTIC OR BACTERICIDAL EXPERIMENTS IN VITRO (TABLE I, A.)

Since a substance to be tested may be active against one organism and not another, the following ten bacteria were used.

1. Staphylococcus aureus, National Institutes of Health strain, infection of boils.
2. Pseudomonas aeruginosa (Bacillus pyocyaneus), in wounds.
3. Corynebacterium sp., diphtheroid bacillus.
4. Salmonella enteriditis, partyphoid bacillus.
5. Proteus vulgaris (Bacillus proteus), urinary tract infections.
6. Bacillus sp., spore forming. Anthrax and soil bacteria.
7. Escherichia coli, colon bacillus, urinary tract infections.
8. Sarcina lutea, non-pathogenic.
9. Mycobacterium phlei, acid fast bacillus.
10. Staphylococcus aureus, a pathogenic strain.

Enough of the fluidextract was pipetted into a measured quantity of broth to give the desired concentration (usually 1 to 33). After a thorough mixing it was put into test tubes and sterilized by autoclave at 15 lbs. pressure for 20 minutes. Experience showed that this temperature and pressure eliminated the alcohol from the extract.

The broth was then inoculated from a 24 hour culture of each of the organisms. The cultures were incubated at 37° C and after 24, 48 and 72 hours, subcultures were made on agar slants if growth could not be detected in the broth. The subcultures were incubated and recorded after 24 and 48 hours. If the bacteria were killed before 72 hours, the tube was reinoculated and the same procedure followed. If none of the organisms was killed in 72 hours, the tubes were discarded. The results were recorded as 4 plus, normal growth; 3 plus, less than normal growth; 2 plus, slight growth; 1 plus, very slight growth; and K 24, K 48 or K 72 showed that the organism was killed in that number of hours. For purposes of brevity these data are presented in Table I as O, X, XX and XXX.

Those substances giving moderate or significant action were considered to be worthy of further work to isolate the chemical responsible. This was particularly true where correlation occurred in the chemotherapy experiments (Table I, B).

The effect of aging of the fluidextracts on activity in vitro was determined for a few of the plants. Three of them, Enceliopsis nudicaulis, Eriogonum microthecum and Lupinus laxiflorus showed neither gain nor loss of activity, but Cowania mexicana and one sample of Rosa woodsii, surprisingly enough gained, while another sample of Rosa woodsii lost. The time interval between the two tests was ten months.

The gain or loss shown by some of these extracts presents a problem in any attempt to isolate the active substance. However, this is not a new phenomenon since phenol, for example, gains in activity on aging, and the loss shown by the one plant might be due to the decomposition of some compound or to the loss of volatile matter, although the former would appear to be the more probable since the autoclaving in both sets would doubtless remove most of the volatile substances.

The variable results in repeated experiments are interpreted as due to change of potency through aging of the sample or more likely to the use of analysis samples from different plants. It is well known that no two individuals of a plant species are exactly alike in chemical composition. Further, the age of the plant when collected, the time of year, the kind of soil, all would have an effect.

CHEMOTHERAPY OF PNEUMOCOCCUS INFECTIONS IN MICE (TABLE I, B).

In this phase of screening the white mice were inoculated with a highly virulent strain of Type II Pneumococcus which had been isolated in the Department of Bacteriology at the University of Minnesota.

A new method of administering the test substance with the food of the mice was devised and published (2). The method met with great favor in experimental chemotherapy studies and has been widely adopted.

Fluidextracts of the powdered plants were prepared as indicated for the bactericidal experiments. Neoprontosil, sulfanilamide and cinchona served as control substances.

Each fluidextract was studied in groups of 6 infected mice, with an equal number serving as controls. When the treated mice appeared to live longer than the controls, the experiments were repeated with larger numbers of mice.

Since the number of bacteria to be given in each inoculation had not been satisfactorily determined, judging from the literature, different doses were tested to ascertain the Minimal Lethal Dose (M.L.D.), i.e. the dose of organisms which would kill 50% of the infected mice. A dose of 4000 to 8000 organisms was found to be the preferable M.L.D. (2).

When prolongation of life occurred or there were survivors in the mice, and especially when there was correlation with the results of the bactericidal experiments (Table I, A), further work was indicated to isolate the "curative" or "active" substance.

EXPERIMENTS ON CIRCULATORY SYSTEM (BLOOD PRESSURE) OF THE RABBIT, TABLE II.

A routine examination was made to determine the effects produced by the fluidextracts on the circulatory system of rabbits. The procedure was as follows: a rabbit was anesthetized with sodium phenobarbital, one cannula inserted into one carotid artery in the neck by means of which a record of the blood pressure was obtained on smoked paper of a revolving kymograph; another cannula was inserted into the femoral vein so that intravenous injections of the fluidextracts could be made. The dosage (in cc.) varied as follows: 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.75, 1.0, 1.25, 1.5, 1.75, 2.0, 2.25.

Beginning with the smallest amount, the effect of each dose was noted until the animal died as the result of one of the injections. The total volume of all the injections given to each animal was determined and recorded as the Minimal Lethal Dose.

Of the 83 species in the table only 10 produced results which were deemed worthy of further study.

Berberis repens (25, 26), Cuscuta spp., Ephedra nevadensis, Gilia aggregata, Gilia pungens, Linum lewisii, Penstemon deustus and Phragmites communis produced prolonged falls in the blood pressure. If the responsible substance could be isolated and was not too toxic it might be of value in treating patients with hypertension. A satisfactory drug of this kind is needed in medicine.

Hermidium alipes (5,31) proved of interest for the marked and striking rise in blood pressure, much like that produced by epinephrine.

Thalictrum fendleri produced falls followed by slow returns to above normal. This was suggestive of the action caused by digitalis (see p. 127).

EFFECTS ON THE SMOOTH MUSCLE (ILEUM) OF THE RABBIT (TABLE I, C).

None of the fluidextracts from 22 plants produced an effect on the isolated ileum that could be interpreted as having a possible worthwhile clinical use.

DETERMINATION OF ASCORBIC ACID (VITAMIN C) CONTENT (TABLE I, E).

Powdered samples of 53 Nevada plants were assayed by the accepted chemical (dichlorphenol, indophenol) titration method for Vitamin C. Each value is an average of four determinations. They vary from 0.25 to 41.4 mgm. per 100 grams of dry powdered sample. No attempt was made to rule out possible interfering substances in the titration, with the exception of the following. Three plants, Rosa woodsii (leaves), 41.4%; Sambucus velutina, 26.7; and Ephedra nevadensis, 24.3, with the highest values obtained were assayed on guinea pigs. The effects noted were sufficiently good to warrant the opinion that the data obtained by the titration method were correct.

There seems to be no certainty as to the role of ascorbic acid in infections in animals and man. One investigator has claimed that it improves the effect of sulfanilamide in experimental hemolytic streptococcus infections. In the present studies with pneumococcus infections of mice, however, no correlation could be found between a high concentration of ascorbic acid and beneficial effect of the test substance.

The very least that can be said for these crude medicines is that a careful ingestion of many of the plants from time to time by the Indians would serve to increase the amount of Vitamin C within their bodies, with the consequent physiological role.

TABLE I. RESULTS OF SCREENING PROCESS.

A - Bactericidal; B - Chemotherapy; C - Rabbit ileum; D - Alkaloids;

E - Ascorbic acid %.

- - - - - - - - - - - - - - - - - - - -

Key: O, no action; X, slight; XX, moderate; XXX, significant; +, present;

-, absent.

Name of plant	Lit. Ref.	A	B	C	D	E
Abies concolor		X	O			
Achillea lanulosa		O-X	O-X			6.1
Anemopsis californica		XX	O			5.5
Angelica breweri		O-XX	O			
Aplopappus nanus		O-XX	O-X			9.8
Argemone platyceras	(28)	O	XXX		+	3.7
Artemisia dracunculoides		O-X	O-X			6.0
" gnaphalodes		O	O-X			
" spinescens		O-X	X			0.46
" tridentata		X-XX	X-XX			8.3
Asclepias cryptoceras		O	O			8.2
" speciosa		O	O-X	O		9.6
Aster leucanthemifolius		O	O			3.1
Astragalus lentiginosus		O	XXX			13.1
" whitneyi		O	O			
Atriplex canescens		O	O			
Balsamorhiza hirsuta		O	O			
" sagittata	(34)	O	O	O	-	
Berberis repens	(25, 26)	XX	O-X		+	

TABLE I. (Cont'd.).

Name of plant	Lit. Ref.	A	B	C	D	E
Catabrosa aquatica		0	0	0		
Cercocarpus ledifolius		0-X	0-X		-	18.9
Chaenactis douglasii	(11)	0	0-XX		-	0.25
Chamaebatiaria millefolium		XX	0	0		
Chrysothamnus nauseosus var. speciosus		0-X	X	0		
Chrysothamnus viscidiflorus		0	0-XX			
Cicuta occidentalis		X-XX	0			1.8
Clematis ligusticifolia		0	0-X	0		3.7
Cowania mexicana		XX	0			
Crepis acuminata		0	0			
Cucurbita foetidissima		0	0			
Cuscuta spp.		XX				
Dalea polyadenia		0-XX	XXX		-	10.1
Datura meteloides		0	0			
Desmanthus illinoensis		0	0			
Enceliopsis nudicaulis		0	0-X			
Ephedra nevadensis		0-XX	X			24.3
Equisetum kansanum		0	X			
Erigeron concinnus var. aphanactis		0	0			9.7
Eriodictyon angustifolium	(12, 13, 18)	X-XXX	0-XXX		-	2.8
Eriogonum microthecum		0				
" umbellatum		0	0-XXX	0		

TABLE I. (Cont'd.).

Name of plant	Lit. Ref.	A	B	C	D	E
Euphorbia arenicola		0	0			
" polycarpa		X	0			6.4
Eurotia lanata		0	0			5.1
Frasera albomarginata var. induta		0	0			
Gilia aggregata		0-X	X-XXX		-	
" congesta		0	0		-	6.4
" eremica		0			-	5.5
" filifolia var. sparsiflora		0	0		-	15.2
" pungens		0	0			5.1
Grindelia squarrosa var. serrulata	(17)	XXX	0-XXX		-	
Gutierrezia sarothrae		0	0			
Heliotropium curassavicum var. oculatum		0	X	0		
Hermidium alipes	(5, 31)	X			-	0.75
Hypericum scouleri		X	X			
Iris missouriensis	(9)	0-X	X		-	4.1
Iva axillaris		0	0			4.6
Juniperus communis		XX	0	0		
" scopulorum		XX	0			
" utahensis		XX	0			
Larrea divaricata	(16, 32, 33)	XXX	XXX		-	19.8
Leptotaenia multifida	(20)	XX	0		-	22.8

TABLE I. (Cont'd.).

Name of plant	Lit. Ref.	A	B	C	D	E
Ligusticum filicinum		O				
Linum lewisii		O	X			6.0
Lithospermum ruderale		O		O		6.4
Lupinus caudatus	(27, 29)	O	O		+	9.6
" laxiflorus		O	O-X	O		
" tenellus		O	O			8.3
Lygodesmia spinosa	(15)	O-X	O		-	9.2
Mentha canadensis		O	O-X			2.8
Mimulus guttatus		XX	XXX			
Monardella odoratissima		O	O			6.0
Nicotiana attenuata		X	O		-	
Orobanche californica		X	X			20.2
Osmorhiza occidentalis		O-XX	X-XX	O		5.5
Paeonia brownii		X	XXX			
Parrya menziesii		O	X			
Penstemon deustus		O	O		+	9.4
Phlox longifolia		O	X			3.2
Phragmites communis		O	O			7.4
Physaria chambersii		O	O			
Pinus monophylla		O-XX	O-XX	O		6.4
Plantago major		O	O-X			
Pluchea sericea		X	O			9.2
Populus trichocarpa		O		O		
Prunus andersonii		O-X	X			9.2
Psathyrotes annua		O	O	O	?	8.7

TABLE I. (Cont'd.).

Name of plant	Lit. Ref.	A	B	C	D	E
Purshia tridentata	(23, 24)	O-X	O		-	
Rosa woodsii		X	X			41.4
Rumex crispus		O	O			
" venosus		O-X	O	O		
Salvia carnosa	(35, 36)	XXX	X-XXX		-	7.8
Sambucus velutina		X	O			26.7
Sarcodes sanguinea	(4)	O-X			-	
Smilacina stellata		O	O-XX			
Solanum villosum		O				
Sphaeralcea parvifolia		O	O			
Sphenosciadum capitellatum		O-XX	O	O		24.9
Stanleya pinnata		O	O			
Suaeda torreyana var. ramosissima		O	O			
Tanacetum vulgare var. crispum		O	O			
Tetradymia comosa var. tetrameres		O		O		
Thalictrum fendleri		O	XX	O	+	13.8
Thamnosma montana	(7, 8)	O-X	O		-	
Urtica gracilis		O	O			14.7
Veratrum californicum		O	O	O		23.9
Wyethia amplexicaulis		O	O-X	O		
" mollis		O	O			
Zigadenus paniculatus		O		O		

TABLE II. EXPERIMENTS ON CIRCULATORY SYSTEM (BLOOD PRESSURE) OF THE RABBIT.

Explanation of abbreviations and symbols: X - degree of action not indicated; 0 - very little or no effect; Circ. - circulation; Resp. - respiration; M.L.D. - minimal lethal dose; lvs. - leaves.

Plant	Lit. Ref.	M.L.D.	Size of dose	Rise	Fall	Duration	Death by failure of	Remarks
Abies concolor		0.58	Small	Slight		Short		
" "			Large	Slight	Sharp		Circ.	Rise less with large dose
Achillea lanulosa		4.0			Marked	Long	Circ.	Cardiac irregularity.
Anemopsis californica		0.38	Small		Sharp	Short		
"			Large		Marked		Resp.	
Angelica breweri		0.75			Sharp	Short	Circ.	Cardiac irregularity.
Aplopappus nanus		1.6		Slight	Marked	Short	Circ.	Falls follow rise
Argemone platyceras	(28) (seed)	1.0		Slight	Sharp	Long	Circ.	Falls follow rise
"	(root)	1-1.24		Slight		Short	Circ.	
Artemisia dracunculoides		8.1			Slight		Circ. & Resp.	
Artemisia gnaphalodes		6.6	Small		Marked	Short		
"			Large				Resp.	

Artemisia spinescens	9.0	Small		0			
"		Large		Sharp	Short	Resp.	
Asclepias cryptoceras	3.95			Sharp	Short	Circ.	
Asclepias speciosa	0.16			Moderate		Circ.	
Aster leucanthemifolius	2.15			Sharp	Long	Circ.	
Astragalus whitneyi	2.2			Marked		Circ.	
Atriplex canescens	1.1			Marked	Long	Resp.	
Balsamorhiza sagittata (34)	5.79	Small		Slight		Circ.	
Berberis repens (26)	0.09	Small		Moderate	Long	Resp.	
Cercocarpus ledifolius	0.93	Small		Sharp			
"		Large		Sharp	Long	Circ. & Resp.	
Chaenactis (11) douglasii	2.0	Small		Marked	Short		Not very toxic.
"		Large				Circ.	Irregular pulse.
Chamaebatiaria millefolium	0.57		Slight	Marked	Long	Circ.	Rise sometimes before fall.

TABLE II, (Cont'd.)

Plant	Lit. Ref.	M.L.D.	Size of dose	Rise	Fall	Duration	Death by failure of	Remarks
Chrysothamnus nauseosus var. speciosus		2.3	Small		Sharp			Fall irregular.
"			Large		Sharp	Long	Circ. & Resp.	
Clematis ligusticifolia		3.3	Small		Slight			
"			Large		Marked	Short	Resp.	
Cowania mexicana		0.77			Marked	Long	Resp.	
Cucurbita foetidissima		0.34			Marked	Short	Resp.	Fall very marked.
Cuscuta spp.		0.2	Small		Marked	Long	Resp.	
Datura meteloides	(lvs.)	1.9	Small		Gradual			Little recovery.
"			Large				Resp.	
"	(root)				Slight		Resp. & Circ.	
Desmanthus illinoensis		1.48	Small		Marked	Short		
"			Large	Slight	X	Short	Resp. & Circ.	Rise followed the fall.
Enceliopsis nudicaulis		5.7			X	Short	Resp. & Circ.	

Ephedra nevadensis	?			Gradual	Long		
Equisetum kansanum	11.5	Small		Slight	Short		
" "		Large		X	Long	Circ.	
Erigeron concinnus var. aphanactis	4.06		Slight	Slight		Resp. & Circ.	Either fall or rise, or alternating.
"	10.0	Small		Slight			Fall rapid.
"		Large				Resp.	Irregular resp.
Eriogonum microthecum	0.84			Irregular	Short	Resp. & Circ.	Falls due to heart disturbance.
Eriogonum umbellatum	2.1	Small	Slight	Slight			
"		Large		Marked		Resp. & Circ.	
" (root)	0.41	Small	Slight		Short		
"		Large		Marked	Long	Circ.	Quite toxic.
Euphorbia polycarpa	0.86			Moderate	Short	Circ.	Pulse irregular
Eurotia lanata	9.95	Small		0			
" "		Large		Marked	Long	Circ.	
Gilia aggregata	0.8	All		Marked	Long	Resp.	
" congesta	0.65			Sharp	Short	Circ.	

TABLE II, (Cont'd.)

Plant	Lit. Ref.	M.L.D.	Size of dose	Rise	Fall	Duration	Death by failure of	Remarks
Gilia filifolia var. sparsiflora		0.2	Large		Marked		Circ.	Quite toxic.
Gilia pungens		3.85			Gradual			Mild.
Grindelia squarrosa var. serrulata	(17)	2.85	Small		Slight	Short		
"			Large		Gradual	Long	Resp.	
Gutierrezia sarothrae (root)		2.2	Small		Marked	Long		
" "			Large				Resp. & Circ.	Heart irregular.
" (lvs. & stem)		4.8	Small		Sharp	Short		
" "			Large				Resp.	Resp. irregular.
Heliotropium curassavicum var. oculatum		1.1	Small	Slight				
"			Large	Irregular	X		Resp.	
Hermidium alipes	(5, 31)	1.0		Marked		Short		Striking rise.
Iris missouriensis	(9)	1.2			Marked	Short	Circ.	
Juniperus communis		1.3			Sharp	Short	Resp.	
Juniperus occidentalis		1.31			Moderate	Short	Resp.	

Leptotaenia multifida	4.7			Sudden			Fall not marked.
Ligusticum filicinum	8.4			Marked	Short	Circ.	
Linum lewisii	2.85	Large		Slight	Long		Mild.
Lithospermum ruderale	4.7	Small		0			
"		Large				Circ. & Resp.	Death rapid.
Lupinus caudatus (27, 29)	?	Small		Slight	Short		
"		Large		Sharp	Short	Circ.	
Lupinus laxiflorus	8.94			Slight	Short	Circ.	
" (seed)	1.42	Small	Slight	X	Short		
" "		Large		Moderate		Resp.	
Lygodesmia spinosa	1.07			Marked	Short	Resp. &. Circ.	Recovery to below normal.
Mimulus guttatus	9.56			Marked	Short	Resp.	Occasional rise to above normal.
Monardella odoratissima	3.21	Large		X		Resp.	

TABLE II, (Cont'd.)

Plant	Lit. Ref.	M.L.D.	Size of dose	Rise	Fall	Duration	Death by failure of	Remarks
Osmorhiza occidentalis	(root)	0.5			Sharp	Short	Resp. & Circ.	
"	(lvs. & stems)	1.4			Sharp	Short	Resp. & Circ.	
Paeonia brownii		1.5			Sharp	Short	Circ.	
Parrya menziesii		3.67	Small		Sharp	Short		
" "			Large				Resp.	
Penstemon deustus		2.3			Marked	Long		
Phragmites communis		1.76			Marked	Long	Resp.	
"		7.7			Slight	Long	Resp.	
Physaria chambersii		0.74			Sharp	Short	Circ.	
Pinus monophylla		1.0			Slight	Short	Circ.	
Pluchea sericea		5.15	Small		Slight	Short		
" "			Large				Resp.	No return to normal.
Populus trichocarpa		1.7	Small		Sharp	Short		
" "			Large		Sharp		Resp. & Circ.	Falls several after large dose.
Prunus andersonii		1.55	Small		0			
" "			Large		Marked		Circ.	
Psathyrotes annua		6.7	Small		0			

Psathyrotes annua	6.7	Large		Marked		Circ.	
Purshia tridentata (23, 24)	0.66			Marked			Fall very marked.
Rosa woodsii (lvs.)	0.12			Sharp		Resp. & Circ.	
Rumex crispus	4.17			Sharp	Short	Circ.	
Rumex venosus	3.7	Small		0			
" "		Large		X	Long	Resp. & Circ.	
Sarcodes (4) sanguinea	9.1	Small		Slight	Short		Not very toxic.
"		Large		Marked	Short	Circ.	
Smilacina stellata	?	Small	Slight	Moderate	Short		A rise before the fall.
" "	1.28			Marked	Short	Resp. & Circ.	
Solanum villosum	0.018			Marked	Short	Circ.	
Sphaeralcea parvifolia	3.6	Small	Slight	Moderate			
"		Large		Marked		Resp.	
Sphenosciadum capitellatum	8.6	Small		Sharp	Short		
"		Large	Mild			Circ.	

TABLE II, (Cont'd.)

Plant	Lit. Ref.	M.L.D.	Size of dose	Rise	Fall	Duration	Death by failure of	Remarks
Stanleya pinnata		6.67			Moderate	Short	Resp.	
Suaeda torreyana var. ramosissima		2.3			Moderate	Short	Resp. & Circ.	
Tanacetum vulgare var. crispum		2.7			Slight	Short	Resp.	
Tetradymia comosa var. tetrameres		2.8	Small	Slight		Short		
"			Large		X		Resp.	
Thalictrum fendleri		1.6-4.7			Marked	Long		Return to above normal.
Thamnosma montana	(7,8)	8.0			Slight		Circ.	Not very toxic.
Urtica gracilis		0.2			Marked	Long	Resp.	
Veratrum californicum		0.1		Slight	Marked		Resp. & Circ.	Fall follows rise.
Wyethia mollis		0.17			Marked		Resp. & Circ.	Irregular falls. Poor recovery.

SEARCH FOR A DIGITALIS-LIKE ACTION

Since the action of Thalictrum fendleri in producing falls in blood pressure followed by slow returns to above normal (Table II) was suggestive of the cardiac stimulation brought on by digitalis, further experimentation was conducted.

Extracts of the plant were tested by means of the Digitalis frog assay method (United States Pharmacopoeia XI). Veratrum californicum was included because of its known digitalis-like action and because of its former use for this effect in man. Achillea lanulosa, Ephedra nevadensis and Triglochin maritima (**) served as inactive controls. Tincture of Digitalis was used as the active control.

Achillea lanulosa and Triglochin maritima had no effect. Ephedra nevadensis had a greater effect than Veratrum californicum upon the tone of the muscle and slowed the rate of the heart. Thalictrum fendleri increased the heart tone and systolic action but had to be given in concentrated doses, and even then was only a fraction as active as U. S. P. Digitalis.

Whether these drugs are almost inactive on the one hand or whether they are much less apt to produce the toxic and dangerous effects of digitalis on the other cannot be answered from these experiments. Further testing in other animals is necessary.

GUINEA PIG UTERI STUDIES

The fluidextracts of Smilacina stellata and Phoradendron californicum (**) produced a marked contraction of the isolated guinea pig uterus. (This was true also of Grindelia squarrosa var. serrulata (17)). The effect was similar to that produced by ergot. Since these drugs did not raise the blood pressure (whereas ergot has this unwanted action after childbirth), further studies should be conducted with this uterine stimulant action. Seven other plants, Berberis repens, Ephedra nevadensis, Hermidium alipes (31), Mirabilis laevis (**), Mirabilis froebellii var. glabrata (**), Veratrum californicum and Wyethia mollis were found to have no or very mild and variable effect and were not deemed worthy of further study.

MISCELLANEOUS CHEMICAL AND PHARMACOLOGICAL EXPERIMENTS

Cercocarpus ledifolius - Contains a large amount of tannin. Fixed oil, wax, resins and probably a glucoside were separated and studied.

Cuscuta spp. - In fertility control experiments with rats and mice, the animals were fed a diet of 20% fluidextract for 10 days. Litters were produced normally but in the case of four mice the young died before they were six days old. On the basis of only two experiments, little can be said as to the effect of this plant. However, the inability of the

---

(**) Not a medicinal plant of Nevada Indians.

four females to care for their young may have some significance.

Dalea polyadenia - In tests on mice the fluidextract apparently inhibited conception as did Lithospermum ruderale. Further experimentation was not attempted for lack of adequate plant material.

Gilia aggregata - A cathartic effect produced in mice during the feeding experiments might be worthy of further study.

Gilia filifolia var. sparsiflora was one of the most toxic drugs fed to mice. It appears to be extremely unpalatable. If a means of decreasing the unpalatability could be found it should be studied for a possible rodent poison. Orally it appears to be less toxic for rabbits than for mice.

Phragmites communis - Analysis of the dry, sweet exudate showed: glucose (dextrose) 11.2%; sucrose (cane sugar) 40.6%. Other similar "natural sugars" have been reported to contain mannose, but was not found in the present sample.

Psathyrotes annua - The analysis yielded a volatile oil, dark green in color with pungent odor like citronella; alkaloids possibly present; also a crystalline sugar.

PLANT NAMES RELATED TO THE PHARMACOLOGICAL PUBLICATIONS.

Argemone platyceras (28); Balsamorrhiza sagittata (34); Berberis repens (25, 26); Chaenactis douglasii (11); Eriodictyon angustifolium (12, 13, 18); Grindelia squarrosa var. serrulata (17); Hermidium alipes (5, 31); Iris missouriensis (9); Larrea divaricata (1, 10, 14, 16, 19, 21, 22, 30, 32, 33); Leptotaenia multifida (20); Lithospermum ruderale (6); Lupinus caudatus (27, 29); Lygodesmia spinosa (15); Purshia tridentata (23, 24); Salvia carnosa (35, 36); Sarcodes sanguinea (4); Thamnosma montana (7, 8).

PUBLICATIONS RESULTING FROM PHARMACOLOGICAL RESEARCH.

1. Bieter, R. N., H. O. Halvorson & O. Gisvold - Nordihydroguaiaretic acid. Mss., 2 pp. 1944.

2. ---- - R. N., W. P. Larson, E. M. Cranston & M. Levine - Administration of drugs in food for chemotherapy studies in mouse Pneumococcus infections. Journ. Pharm. & Exper. Ther. 68: 252-258. 1940.

3. ---- - Protective chemotherapy of type II Pneumococcus infections in mice. Proc. Soc. Exp. Biol. & Med. 41: 202. 1939. (Abstract of No. 2).

4. Buelow, D. W. - A phytochemical and pharmacological study of Sarcodes sanguinea. M.S. thesis, Univ. Minn. 22 pp. 1939.

5. ------ & O. Gisvold - A phytochemical investigation of Hermidium alipes. Journ. Am. Pharm. Assoc. Sci. Ed. 33: 270-274. 1944.

6. Cranston, E. M. - The effect of Lithospermum ruderale on the oestrous cycle of mice. Journ. Pharm. & Exper. Ther. 83: 130-142. 1945.

7. Dennard, T. H. - A phytochemical study of Thamnosma montana (Torr. & Frem.). M.S. Thesis, Univ. Minn. 34 pp. 1941.

8. ------ & G. L. Jenkins - A phytochemical study of Thamnosma montana (Torr. & Frem.). Mss. 9 pp. 1941. (Abstract of No. 7).

9. Fredell, W. G. - A phytochemical and pharmacological study of Iris missouriensis. M.S. thesis, Univ. Minn. 15 pp. 1939.

10. Gisvold, O. - On isolation and preparation of nordihydroguaiaretic acid. U. S. Patent 2,383,475 to Univ. Minn. 1945.

11. Hadley, W. J. - A phytochemical study of Chaenactis douglasii. M.S. thesis, Univ. Minn. 13 pp. 1940.

12. ---- - A phytochemical study of Eriodictyon angustifolium. A preliminary report. Mss., 20 pp. 1941.

13. ------ & O. Gisvold - A phytochemical study of Eriodictyon angustifolium Nuttall. Journ. Amer. Pharm. Assoc. Sci. Ed. 33: 275-277. 1944. (Abstract of No. 12).

14. Halvorson, H. O. - Notes on the use of nordihydroguaiaretic acid for the preservation of lard. Mss. 3 pp. 1942.

15. Hansen, Harriet - A phytochemical and pharmacological study of Lygodesmia spinosa. M.S. thesis, Univ. Minn. 9 pp. 1939.

16. Horn, G. M. & O. Gisvold - A phytochemical study of Larrea divaricata Cav. with special emphasis on its yellow pigments. Journ. Amer. Pharm. Assoc. Sci. Ed. 34: 82-86. 1945.

17. Keyes, W. A. - A phytochemical and pharmacological study of Grindelia squarrosa. (*) M.S. thesis, Univ. Minn. 21 pp. 1939.

18. Lark, G. C. - A phytochemical study of Eriodictyon angustifolium (Nutt.). M.S. thesis, Univ. Minn. 14 pp. 1940.

19. Lauer, W. M. - On use of nordihydroguaiaretic acid. U. S. Patent 2,373,192 to Secretary of Agriculture. 1945.

(*) = Grindelia squarrosa var. serrulata.

20. Lloyd, W. R. & G. L. Jenkins - A phytochemical study of Leptotaenia multifida Nuttall. Pharm. Arch. 13: 33-38. 1942.

21. Lundberg, W. O. & H. O. Havorson - Observations on solubilities and other properties of several oxidants in fats. Proc. Inst. Food Tech. 1945: 115-126.

22. ------, H. O. Havorson & G. O. Burr - The antioxidant properties of nordihydroguaiaretic acid. Oil and Soap 21: 33-35. 1944.

23. Netz, C. V. - A phytochemical and histological study of Purshia tridentata (Pursh) D.C. Ph.D. thesis, Univ. Minn., 28 pp. 1940.

24. ------, C. H. Rogers & G. L. Jenkins - A phytochemical and histological study of Purshia tridentata D. C. Journ. Amer. Pharm. Assoc. 29: 480-485. 1940. (Abstract of No. 23).

25. Seery, T. M. - Contributions to the pharmacology of berberine. M.S. thesis, Univ. Minn. 65 pp. 1939.

26. ------ & R. N. Bieter - A contribution to the pharmacology of berberine. Journ. Pharm. & Exper. Ther. 69: 64-76. 1940. (Abstract of No. 25).

27. Soine, T. O. - A phytochemical and pharmacological study of Lupinus caudatus Kellogg. M.S. thesis, Univ. Minn. 27 pp. 1939.

28. ------ & O. Gisvold - A phytochemical study of Argemone hispida. (**) Journ. Amer. Pharm. Assoc. Sci. Ed. 33: 185-188. 1944.

29. ------ & G. L. Jenkins - A phytochemical study of Lupinus caudatus Kellogg. Pharm. Arch. 12: 65-71. 1941. (Abstract of No. 27).

30. Tsuchiya, H. M., C. H. Drake, H. O. Halvorson & R. N. Bieter - An antibacterial substance from a plant. Journ. Bact. 47: 422. 1944.

31. Waldon, C. H. & G. L. Jenkins - A phytochemical and pharmacological study of Hermidium alipes S. Wats. Pharm. Arch. 13: 65-79. 1942.

32. Waller, C. W. - A phytochemical study of Larrea divaricata. Ph.D. thesis, Univ. Minn. 43 pp. 1942.

33. ------ & O. Gisvold - A phytochemical investigation of Larrea divaricata Cav. Journ. Amer. Pharm. Assoc. Sci. Ed. 34: 78-81. 1945. (Abstract of No. 32).

34. White, A. I. & G. L. Jenkins - A phytochemical study of Balsamorrhiza sagittata. Pharm. Arch. 13: 49-59. 1942.

(**) = Argemone platyceras.

35. ------ Salvia carnosa (Dougl.), I, A phytochemical study. Journ. Amer. Pharm. Assoc. Sci. Ed. 31: 33-37. 1942.

36. ------ Salvia carnosa (Dougl.), II, Carnosol. Journ. Amer. Pharm. Assoc. Sci. Ed. 31: 37-43. 1942.

INDEX